

FINAL PLANS

NAME OF CONTRACTOR: \_\_\_\_\_  
 DATE OF LETTING: \_\_\_\_\_  
 DATE WORK BEGAN: \_\_\_\_\_  
 DATE WORK COMPLETED: \_\_\_\_\_  
 DATE WORK ACCEPTED: \_\_\_\_\_  
 SUMMARY OF CHANGE ORDERS:

STATE OF TEXAS  
 DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED  
 STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT F 2024(053), ETC.

SH 183  
 TARRANT COUNTY

FROM WEHRING ROAD TO HANDLEY-EDERVILLE ROAD  
 TOTAL LENGTH OF PROJECT = 4,750 FT = 0.899 MI.

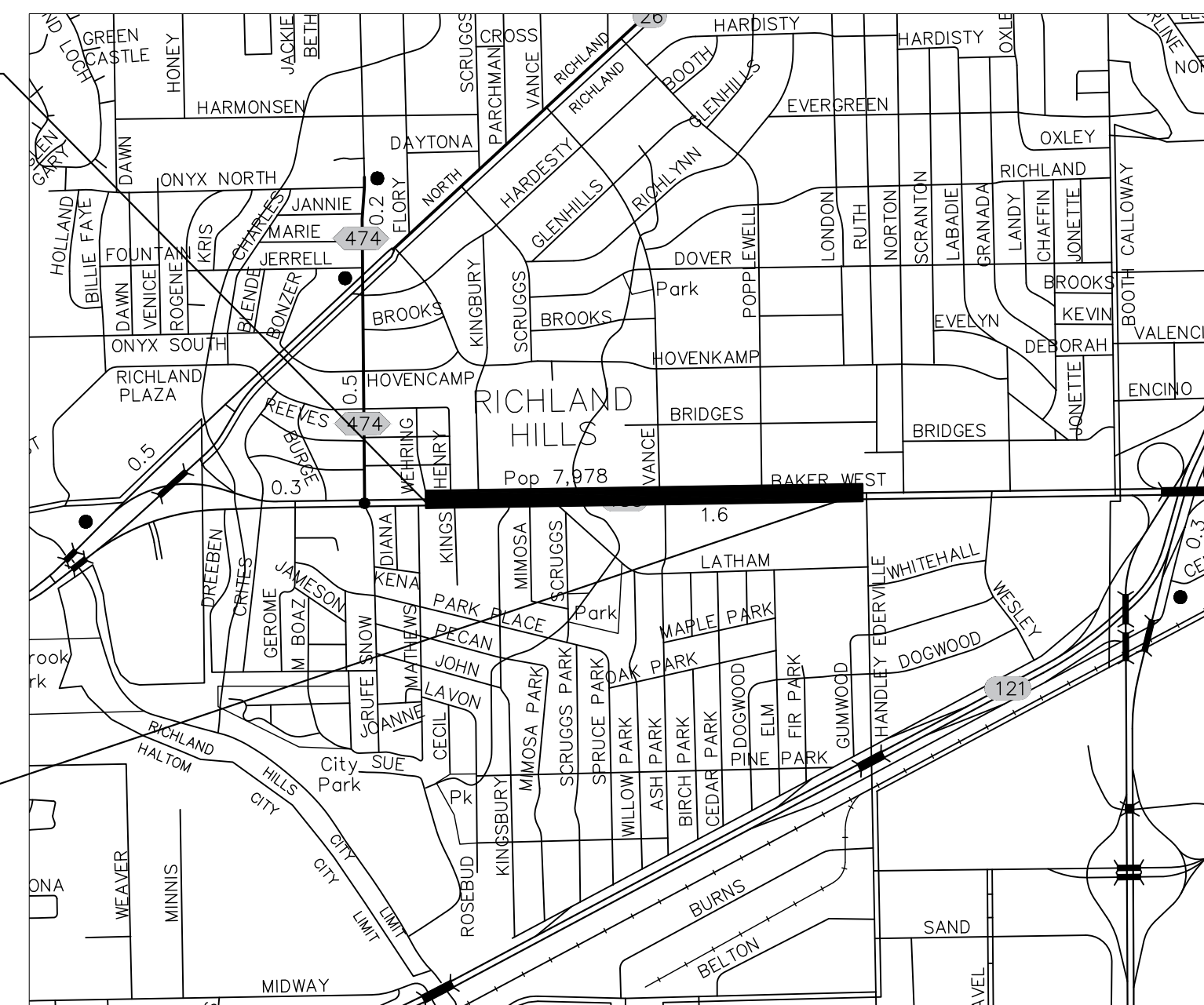
DESIGN AG	FED.RD. DIV.NO.	PROJECT NUMBER		HIGHWAY NO.
ST	6	F 2024(053)		SH 183
CHECK LJO	TEXAS	DISTRICT	COUNTY	SHEET NO.
CHECK KMW	CONTROL	SECTION	JOB	001
	0094	02	146	

FUNCTIONAL CLASSIFICATION  
 URBAN PRINCIPAL ARTERIAL- OTHER, ETC  
 DESIGN SPEED: 55 MPH

FOR THE CONSTRUCTION OF LANDSCAPE AND SCENIC ENHANCEMENT WORK  
 CONSISTING OF PLANTING AND IRRIGATION IMPROVEMENTS

SH 183 LANDSCAPE BEGIN PROJECT  
 CSJ: 0094-02-146  
 STA 367+50  
 STATE REFERENCE MARKER #560+10.994

SH 183 LANDSCAPE END PROJECT  
 CSJ: 0094-02-146  
 STA 415+00  
 STATE REFERENCE MARKER #560+11.892



TARRANT COUNTY  
 SCALE: NTS  
 FORT WORTH DISTRICT

**halff**  
 4000 FOSSIL CREEK BLVD.  
 FORT WORTH, TEXAS 76137-2720  
 TEL (817) 764-7475  
 FAX (817) 232-9784  
 TBPE FIRM No. F-312

SUBMITTED FOR LETTING: MAY 19 2023  
 [Signature], P.L.A.  
 LAYNE OLIVO, RLA  
 LANDSCAPE ARCHITECT

SUBMITTED FOR LETTING: May 19 2023  
 [Signature], P.E.  
 CONNOR R. GUERRERO, P.E.  
 PROFESSIONAL ENGINEER

SUBMITTED FOR LETTING: 6/11 2023  
 [Signature]  
 JASON BROWN, CPRP  
 PARKS AND RECREATION DIRECTOR,  
 RICHLAND HILLS, TX

NOTE:

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014, AND THE CONTRACT PROVISIONS LISTED AND DATED AS FOLLOWS SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, JULY, 2022)

WORK WAS COMPLETED ACCORDING TO THE PLANS AND CONTRACT.

\_\_\_\_\_, R.L.A.  
 Signature of Registrant & Date

EQUATIONS: NONE  
 EXCEPTIONS: NONE  
 RAILROAD CROSSINGS: NONE

SUBMITTED FOR LETTING: 6/27/2023 20  
 [Signature], P.E.  
 AREA ENGINEER

RECOMMENDED FOR LETTING: 6/30/2023 20  
 [Signature], P.E.  
 DIRECTOR OF TRANSPORTATION  
 PLANNING & DEVELOPMENT

APPROVED FOR LETTING: 6/30/2023 20  
 [Signature], P.E.  
 DISTRICT ENGINEER

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THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE WITH AN \* HAVE SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

*Connor R. Guerrero*, P.E. 05/19/2023  
 Signature of Registrant & Date

		4004-0000, CRISTO BLVD FORT WORTH, TEXAS 76137 TEL: (817) 847-1432	
		Texas Department of Transportation	
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## GENERAL PROJECT NOTES

- TOPOGRAPHICAL MAPPING SHOWN PER JANUARY 2016 BY HALFF ASSOCIATES. CONTRACTOR TO NOTIFY ARCHITECT OF ANY DISCREPANCIES BETWEEN THE PLAN TOPOGRAPHY AND THE CURRENT EXISTING CONDITIONS.
- CONTRACTOR SHALL VERIFY THE LOCATION, SIZE AND MATERIAL OF ALL UTILITIES AFFECTED BY CONSTRUCTION PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL CONTACT ALL AFFECTED UTILITIES 48 HOURS PRIOR TO CONSTRUCTION.  
DIG TEST / TEXAS 811
- CONTRACTOR TO NOTIFY THE OWNER WHEN ANY DISCREPANCY IS FOUND BETWEEN PLANS AND EXISTING CONDITIONS. IN THE EVENT A DISCREPANCY IS FOUND THE CONTRACTOR WILL MAKE FIELD ADJUSTMENTS TO CORRECT ANY PROBLEM.
- THE CONTRACTOR IS RESPONSIBLE FOR SECURING ACCESS TO THE CONSTRUCTION SITE, SUBJECT TO APPROVAL FROM THE CITY OF RICHLAND HILLS.
- WHERE EXISTING UTILITIES OR SERVICE LINES ARE CUT, BROKEN OR DAMAGED, THE CONTRACTOR SHALL REPLACE OR REPAIR THE UTILITIES OR SERVICE LINES WITH THE SAME TYPE OF ORIGINAL MATERIAL AND CONSTRUCTION, OR BETTER, UNLESS OTHERWISE SHOWN OR NOTED ON THE PLANS, AT HIS OWN COST AND EXPENSE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AT ONCE OF ANY CONFLICTS IN GRADES AND ALIGNMENT.
- EXISTING UTILITIES SHOWN ARE TAKEN FROM AVAILABLE RECORDS PROVIDED BY THE UTILITY OWNER AND FIELD LOCATIONS OF SURFACE APPURTENANCES. LOCATIONS SHOWN ARE GENERALLY SCHEMATIC IN NATURE AND MAY NOT ACCURATELY REFLECT THE SIZE AND LOCATION OF EACH PARTICULAR UTILITY. SOME UTILITY LINES MAY NOT BE SHOWN. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ACTUAL FIELD LOCATION AND PROTECTION OF EXISTING FACILITIES WHETHER SHOWN OR NOT. CONTRACTOR SHALL ALSO ASSUME RESPONSIBILITY FOR REPAIRS TO EXISTING FACILITIES, WHETHER SHOWN OR NOT, IF DAMAGED BY CONTRACTOR'S ACTIVITIES. DIFFERENCES IN HORIZONTAL OR VERTICAL LOCATION OF EXISTING UTILITIES SHALL NOT BE A BASIS FOR ADDITIONAL EXPENSE.
- THE CONTRACTOR IS RESPONSIBLE FOR KEEPING SIDEWALKS AND ROADS ADJACENT TO THE PROJECT SITE FREE FROM MUD AND DEBRIS FROM THE SITE CONSTRUCTION.
- THE CONTRACTOR SHALL ADOPT APPROPRIATE CONSTRUCTION SITE MANAGEMENT PRACTICES TO PREVENT THE DISCHARGE OF OILS, GREASE, PAINTS, GASOLINE AND OTHER POLLUTANTS TO STORM WATER. APPROPRIATE PRACTICES CAN INCLUDE:
  - DESIGNATING AREAS FOR EQUIPMENT MAINTENANCE AND REPAIR;
  - REGULAR COLLECTION OF WASTE;
  - CONVENIENTLY LOCATED TRASH RECEPTACLES; AND
  - DESIGNATING AND CONTROLLING EQUIPMENT WASHDOWN.
- THE CONTRACTOR SHALL CONSTRUCT A STABILIZED CONSTRUCTION ENTRANCE/EXIT AT ALL TRAFFIC EXIT POINTS PRIOR TO EXITING ONTO ANY PAVED ROADWAY. CONTRACTOR TO RESTORE ALL CONSTRUCTION ENTRANCES ONCE WORK IS FULLY COMPLETED.
- THE ACCESS AND WORK AREAS SHALL BE SECURED DURING NON-WORKING HOURS.
- CONTRACTOR IS RESPONSIBLE FOR, AND MUST OBTAIN PRIOR TO CONSTRUCTION, ALL NECESSARY CONSTRUCTION PERMITS REQUIRED BY THE CITY OF RICHLAND HILLS.
- ADEQUATE MEASURES SHALL BE TAKEN TO PREVENT EROSION. IN THE EVENT THAT SIGNIFICANT EROSION OCCURS AS A RESULT OF CONSTRUCTION, THE CONTRACTOR SHALL RESTORE THE ERODED AREAS TO ORIGINAL CONDITION OR BETTER.
- PRIOR TO CONSTRUCTION, A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH REPRESENTATIVES FROM ALL CONTRACTORS, THE ARCHITECT AND THE CITY OF RICHLAND HILLS.
- BARRICADING AND TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" PART VII IN PARTICULAR. TRAFFIC FLOW AND ACCESS SHALL BE MAINTAINED DURING ALL PHASES OF THE CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC SAFETY MEASURES FOR WORK ON PROJECT.
- ANY DAMAGES THAT MAY OCCUR TO REAL PROPERTY OR EXISTING IMPROVEMENTS SHALL BE RESTORED BY THE CONTRACTOR TO AT LEAST THE SAME CONDITION THAT THE REAL PROPERTY OR EXISTING IMPROVEMENTS WERE IN PRIOR TO THE DAMAGES. THIS RESTORATION SHALL BE SUBJECT TO THE OWNER'S APPROVAL; MOREOVER, THIS RESTORATION SHALL NOT BE A BASIS FOR ADDITIONAL COMPENSATION TO THE CONTRACTOR. RESTORATION SHALL INCLUDE, BUT NOT BE LIMITED TO, REGRASSING, REVEGETATION, REPLACING FENCES, REPLACING TREES, ETC.
- CONSTRUCTION TRAFFIC ROUTES SHALL BE COORDINATED WITH THE CITY OF RICHLAND HILLS PRIOR TO CONSTRUCTION. ALL COMPACTED AREAS DUE TO CONSTRUCTION SHALL BE AERATED AND REVEGETATED TO ORIGINAL CONDITION AT NO EXPENSE TO THE OWNER.
- PRIOR TO CONSTRUCTION, THE OWNER OR OWNER'S REPRESENTATIVE SHALL APPROVE THE LOCATION OF ALL ORGANIC FILTER TUBES.
- THE CONTRACTOR SHALL USE THE LIMITS OF ORGANIC FILTER TUBES AS THE LIMITS OF DISTURBANCE AND ACCESS UNLESS OTHERWISE APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE.
- OWNER ASSUMES NO RESPONSIBILITY FOR ACTUAL CONDITION OF AREAS TO BE DEMOLISHED.
- CONTRACTOR SHALL PERFORM WORK IN A MANNER TO ELIMINATE HAZARDS TO PERSONS OR PROPERTY AND AVOID INTERFERENCE WITH ADJACENT AREAS, UTILITIES, AND STRUCTURES.
- LOT LINES SHOWN ON THE SURVEY CONTROL PLAN AND SHEET INDEXES ARE SHOWN FOR SCHEMATIC PURPOSES ONLY.
- ALL TRAIL SIGNAGE SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH TMUTCD'S STANDARDS AND SPECIFICATIONS.

## EROSION CONTROL NOTES:

- EROSION CONTROL DEVICES, AS SHOWN ON THE EROSIONS CONTROL PLAN FOR THE PROJECT, SHALL BE INSTALLED PRIOR TO THE START OF THE LAND DISTURBING ACTIVITIES WITHIN THEIR CONTROL AREA, BUT NOT SOONER THAN TWO WEEKS PRIOR TO THE ACTIVITIES.
- ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS FOR THE PROJECT. CHANGES ARE TO BE APPROVED BEFORE CONSTRUCTION BY THE DESIGN ENGINEER AND THE CITY OF RICHLAND HILLS ENGINEERING DIVISION.
- IF THE EROSION CONTROL PLAN AS APPROVED CANNOT CONTROL EROSION AND OFF- SITE SEDIMENTATION FROM THE PROJECT, THE EROSION CONTROL PLAN WILL BE REQUIRED TO BE REVISED AND/OR ADDITIONAL EROSION CONTROL DEVICES WILL BE REQUIRED ON SITE.
- IF OFF- SITE SOIL BORROW OR SPOIL SITES ARE USED IN CONJUNCTION WITH THIS PROJECT, THIS INFORMATION SHALL BE DISCLOSED. ALSO SHOW THESE SITES ON THE EROSION CONTROL PLAN IF LOCATED WITHIN ONE-MILE OF THE PROJECT AREA. OFF- SITE BORROW AND SPOIL AREAS ARE CONSIDERED A PART OF THE PROJECT SITE AND THEREFORE SHALL COMPLY WITH THE CITY OF RICHLAND HILLS EROSION CONTROL REQUIREMENTS. THESE AREAS SHALL BE STABILIZED WITH PERMANENT GROUND COVER PRIOR TO FINAL APPROVAL OF THE PROJECT.

## PAVING IMPROVEMENT NOTES

- CONTRACTOR'S WORK SHALL INCLUDE PAVEMENT REMOVAL AND PROPER LEGAL DISPOSAL OF DEBRIS REQUIRED FOR NEW WALKS, DRIVES, CURBS, GUTTERS AND OTHER PAVING AND CONCRETE FEATURES. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, INSPECTION AND TESTING REQUIRED BY THE OWNER AND/OR THE CITY OF RICHLAND HILLS.
- CONTRACTOR IS DIRECTED TO THE SITE PLAN DRAWINGS FOR DETAILED SITE LAYOUT DIMENSIONS.
- ALL SIDEWALKS AND TRAILS SHALL MEET ADA REQUIREMENTS UNLESS NOTED SPECIFICALLY OTHERWISE ON THE PLANS. MAXIMUM CROSS SLOPE SHALL BE 2% AND MAXIMUM LONGITUDINAL SLOPE SHALL BE 5%. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF ANY ADA ACCESSIBLE FLATWORK THAT DOES NOT MEET THE MINIMUM ADA ACCESSIBILITY REQUIREMENTS AT NO ADDITIONAL COST TO THE OWNER.
- ALL GRADES SHOWN ON GRADING PLAN ARE FINISH GRADE ELEVATIONS UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- ALL FILL SHALL BE COMPACTED TO A DENSITY OF AT LEAST NINETY-FIVE (95%) PERCENT STANDARD PROCTOR AS PER ASTM D 698 RANGING FROM TWO (2) PERCENTAGE POINTS BELOW OPTIMUM TO FIVE (5) PERCENTAGE POINTS ABOVE OPTIMUM (-2 TO +5). ALL FILL SHALL BE TESTED AS INSTALLED AND CERTIFIED BY AN APPROVED SOILS LABORATORY. NO SAND FILL SHALL BE USED.
- THE CONTRACTOR SHALL PROCEED WITH PAVING NO MORE THAN SEVENTY-TWO (72) HOURS AFTER DENSITY / MOISTURE TESTS HAVE BEEN TAKEN AND PASSED BY A TESTING FIRM TO BE ASSIGNED BY THE CITY. COPIES OF THE TEST RESULTS SHALL BE FURNISHED TO THE CITY. IN THE EVENT PAVING OPERATIONS HAVE NOT COMMENCED WITHIN THE SEVENTY-TWO-(72) HOUR LIMIT, A RETEST SHALL BE REQUIRED AT THE CONTRACTOR'S EXPENSE.
- THE PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL "PERMANENT SURVEY REFERENCE MONUMENTS" AS DESCRIBED IN THE SUBDIVISION ORDINANCE INCLUDING CONCRETE MONUMENTS AND ALL BOUNDARY CORNERS.
- THE CONTRACTOR SHALL PROTECT EXISTING PROPERTY MONUMENTATION AND PRIMARY CONTROL. ANY SUCH POINTS WHICH THE CONTRACTOR BELIEVES WILL BE DESTROYED SHALL HAVE OFFSET POINTS ESTABLISHED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY MONUMENTATION DESTROYED BY THE CONTRACTOR SHALL BE REESTABLISHED AT HIS/HER EXPENSE.
- CONTRACTOR SHALL LOCATE AND ADJUST EXISTING UTILITY MANHOLE LIDS, CLEANOUTS, WATER VALVES AND OTHER SURFACE APPURTENANCES AS REQUIRED FOR NEW CONSTRUCTION. CONTRACTOR SHALL COORDINATE UTILITY ADJUSTMENTS WITH OTHER DISCIPLINES AND THE APPROPRIATE UTILITY AGENCIES AND PROVIDE FOR ALL FEES FOR PERMITS, CONNECTIONS, INSPECTIONS, ETC.
- CONTRACTOR SHALL PROTECT EXISTING DRAINAGE OUTFALL STRUCTURES.
- FOR CONCRETE AND PAVEMENT, USE MINIMUM 4,000 P.S.I. REINFORCED CONCRETE PAVEMENT WITH #3 BARS AT 18" ON CENTER, WITH MINIMUM 3" COVERAGE OVER REBAR AS SHOWN ON CITY STANDARD DETAILS.
- CONCRETE PAVING JOINTS SHALL BE CONSTRUCTED AS SHOWN ON THE DRAWINGS AND DETAILS. EXPANSION JOINTS SHALL BE PLACED AT CHANGES IN DIRECTION OF PAVING, AT DRIVEWAYS AND/OR AS SHOWN ON THE DRAWINGS. SEAL ALL JOINTS AS SHOWN ON THE DRAWINGS.
- CONTRACTOR SHALL STAKE TRAIL CENTERLINES AND NOTIFY THE OWNER PRIOR TO TRAIL INSTALLATION FOR APPROVAL OF TRAIL ALIGNMENT.

## PLANTING NOTES:

- CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL ABOVE GROUND AND UNDERGROUND UTILITIES.  
\*EXTREME CAUTION SHOULD BE EXERCISED WHEN EXCAVATING. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE AND SUBSEQUENT REPAIR TO ANY EXISTING UTILITIES.
- CONTRACTOR SHALL REPAIR ANY AND ALL UTILITIES THAT ARE DAMAGED DURING INSTALLATION AT NO ADDITIONAL COST TO THE CLIENT.
- SHADE TREES TO BE PLANTED NO CLOSER THAN 5' FROM EXISTING UTILITIES UNLESS OTHERWISE NOTED.
- ALL TURF GRASS AREAS ARE TO BE COVERED ACCORDINGLY:
  - SOD SHALL BE PLANTED IN A 5' AREA PARALLEL TO THE ENTIRE LENGTH OF THE CONCRETE TRAIL ON BOTH SIDES AND ALONG ANY AREA OF NEW CONCRETE SIDEWALK.
  - ALL OTHER DISTURBED AREAS SHALL BE HYDROMULCHED WITH BERMUDA GRASS SEED AND ESTABLISHED WITH WATERING TRUCK FOR A MINIMUM OF 30 DAYS OR OTHER APPROVED TIME PERIOD THAT IS AGREED UPON BY THE CONTRACTOR AND THE CITY.
- CONTRACTOR TO FIELD VERIFY THE LIMITS OF ALL DISTURBED AREAS TO BE COVERED WITH BERMUDA GRASS HYDROMULCH.
- ALL TRANSPLANTED TREES PLANTING SHALL BE ESTABLISHED WITH WATERING TRUCK FOR A MINIMUM OF 30 DAYS OR OTHER APPROVED TIME PERIOD THAT IS AGREED UPON BY THE CONTRACTOR AND THE CITY.
- CONTRACTOR TO RELOCATE ANY EXISTING IRRIGATION SYSTEM WITH RELOCATION OF TREES TO ENSURE ALL TREES RECEIVE PROPER IRRIGATION.

## IRRIGATION NOTES:

- ALL LANDSCAPE PLANTING AREAS ARE TO BE IRRIGATED BY A FULLY AUTOMATED IRRIGATION SYSTEM.
- IRRIGATION SYSTEM TO PROVIDE 100% COVERAGE OF ALL LANDSCAPE PLANTINGS.
- SHRUB AND GROUNDCOVER AREAS TO BE IRRIGATED WITH A LANDSCAPE DRIPLINE SYSTEM.
- REFER TO IRRIGATION SYSTEM DRAWINGS AND SPECIFICATIONS. IF IRRIGATION SYSTEM DRAWINGS AND SPECIFICATIONS ARE NOT INCLUDED, LANDSCAPE CONTRACTOR TO PROVIDE DESIGN BUILD IRRIGATION SYSTEM PLANS
- PROPOSED IRRIGATION TO CONNECT TO EXISTING IRRIGATION SYSTEM. CONTRACTOR TO VERIFY EXISTING IRRIGATION SYSTEM LOCATIONS, AVAILABLE PRESSURE, AND CONTROLLER CAPACITY.



## TREE SURVEY / DEMOLITION NOTES

- INFORMATION PROVIDED ON THIS PLAN DOES NOT DELINEATE ANY UNDERGROUND FOUNDATIONS OR OBJECTS THAT CURRENTLY MAY BE COVERED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER REMOVAL AND DISPOSAL OF MATERIALS AS REQUIRED BY THE CITY OF RICHLAND HILLS.
- CONTRACTOR SHALL INSTALL APPLICABLE EROSION CONTROL MEASURES PRIOR TO SITE WORK COMMENCEMENT. REF. EROSION CONTROL PLAN.
- ALL TREES SHALL REMAIN UNLESS OTHERWISE NOTED ON THE TREE SURVEY AND DEMOLITION PLAN. CONTRACTOR SHALL EXERCISE EXTREME CAUTION AND CARE WHEN GRADING AROUND EXISTING TREES.
- QUANTITIES PROVIDED ON THE DEMOLITION SHEETS ARE ESTIMATES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE REMOVAL AND DISPOSAL OF PAVEMENTS, LANDSCAPING, AND UTILITIES IN CONFLICT WITH THE PROPOSED IMPROVEMENTS.
- ANY PROTECTED TREE THAT IS DAMAGED OR REMOVED PRIOR TO OWNER APPROVAL SHALL BE MITIGATED PER THE CITY OF RICHLAND HILLS ORDINANCES BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR TO REMOVE PAVEMENT TO THE NEAREST JOINT, WHERE EXISTING CONCRETE AND PROPOSED CONCRETE MEET, THE CONTRACTOR IS TO PROVIDE AN EXPANSION JOINT UNLESS OTHERWISE NOTED.
- CONTRACTOR TO NOTIFY THE OWNER OF ANY SITE ELEMENTS SUCH AS TRASH RECEPTACLES, DRINKING FOUNTAINS, SITE FURNISHINGS THAT MAY BE IN CONFLICT WITH CONSTRUCTION PRIOR TO REMOVING ANY SITE ELEMENT.
- CONTRACTOR SHALL MARK TREES TO BE REMOVED PER PLANS. CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO REMOVAL TO CONFIRM REMOVAL OF MARKED TREES.
- CONTRACTOR TO CONTACT CITY ARBORIST TO OBTAIN TREE REMOVAL PERMIT PRIOR TO REMOVING TREES FROM THE SITE. SEE SHEET L6.02 FOR TREE PROTECTION DETAIL.
- \*\*EXTREME CARE AND CAUTION SHOULD BE TAKEN WHEN WORKING UNDER UTILITY LINES\*\* THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL ABOVE GROUND AND BELOW GROUND UTILITIES BEFORE STARTING WORK.

CALL TXDOT TRAFFIC MANAGEMENT CENTER  
(817-370-3661) FOR TXDOT LOCATES WHEN  
WORKING NEAR EXISTING TRAFFIC SIGNAL.



05/19/2023

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PROJECT NOTES			
FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		03
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183

###

SHEET 03 OF 03

REVISED

Project Number: F 2024(053)

County: TARRANT

Control: 0094-02-146

Highway: SH 183

**Special Notes – For Contractor’s Information**

Contractor questions will be accepted through email, phone, and in person by the above individuals. Questions may also be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:

<https://tableau.txdot.gov/Views/ProjectInformationDashboard/NoticetoContractors>

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

Paper copies of cross-sections may be produced by using the provided .pdf file located on the above website at the bidders’ expense and at copying companies. This data is for non-construction purposes only and it is the responsibility of the prospective bidder to validate the enclosed data with appropriate plans, specifications and estimate for the project(s).

To obtain a copy of the project plans free of charge, submit a request from the following site:  
<http://www.txdot.gov/business/letting-bids/plans-online.html>

Contractor questions on this project can also be addressed to the following individual(s):

Area Engineer’s Email: [Minh.Tran@txdot.gov](mailto:Minh.Tran@txdot.gov)  
Assistant Area Engineer’s Email: [Daniel.Poole@txdot.gov](mailto:Daniel.Poole@txdot.gov)  
Design Manager’s Email: [sam.vacoub@txdot.gov](mailto:sam.vacoub@txdot.gov)

Contract Prosecution: Each contract awarded by the Department stands on its own, and as such is separate from other contracts. A Contractor awarded multiple contracts must be capable and sufficiently staffed to concurrently process and/or execute all contracts at the same time.

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County: TARRANT

Control: 0094-02-146

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Single lane closures, except as otherwise shown in the plans, will be restricted to off-peak hours as defined in the following table:

Peak Hours		Off-Peak Hours	
6 to 9 AM Monday through Friday	3 to 7 PM Monday through Friday	9 AM to 3 PM and 7 PM to 6 AM Monday through Friday	All day Saturday and Sunday

Work that requires closure of multiple travel lanes in the same direction, except as otherwise shown in the plans, are restricted to night hours between 9 PM and 6 AM.

Existing storm sewers and utilities are shown from the best available information. Verify the location of all underground facilities prior to starting work.

For dimensions of right-of-way not shown on the plans, see right-of-way map on file at the TxDOT District Office.

**Modifications to Lane Closure / Work Restrictions:**

Submit a request in writing for approval by the Engineer a minimum of 10 days in advance of implementing a change to lane closure restrictions.

When deemed necessary, the Engineer will lengthen, shorten, or otherwise modify lane closure restrictions as traffic conditions warrant.

When deemed necessary, the Engineer will modify the list of major events when new events develop, existing events are rescheduled, or when warranted.

Special Events/ Special Situations will be handled on a case-by-case basis. No work restricting lane closures is allowed from 3 PM a day before to 9 AM the day after the Special Event or Special Situation.

Do not discolor or damage existing curb and curb and gutter during construction operations. In the event of discoloration or damage, clean or repair as directed.

Remove any obstructions to existing drainage due to the contractor’s operations, as required, at the Contractor’s expense.

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**Item 2. Instructions to Bidders**

Proposals with a bid of more than 90 working days for the substantial completion of the project will be considered non-responsive.

**Item 4 – Scope of Work**

Reimbursement for project overhead will not be considered until project completion has extended beyond the original Contract Time.

**Item 5. Control of the Work**

When supplementary bridge plans, shop drawings, shop details, erection drawings, working drawings, forming plans, or other drawings are required, prepare and submit drawings on sheets 8-1/2 by 11 inches, 17 by 22 inches, or full size drawings reduced to half scale if completely legible. If, in the opinion of the Engineer, the drawings are not completely legible, prepare and submit on sheets 22 by 34 inches, with a 1-1/2 inch left margin, and 1/2 inch top, right, and bottom margins.

Submit all sheets with a title in the lower right hand corner. The title must include the sheet index data shown on the lower right corner of the project plans, name of the structure or element or stream, sheet numbering for the shop drawings, name of the fabricator and the name of the Contractor.

Standard Operating Procedure for Alternate Precast Proposal Submission" found online at <https://www.txdot.gov/inside-tydot/forms-publications/consultants-contractors/publications/bridge.html#design>. Acceptance or denial of an alternate is at the sole discretion of the Engineer. Impacts to the project schedule and any additional costs resulting from the use of alternates are the sole responsibility of the Contractor.

**Item 6: Control of Materials**

(Item 6 Item required, this project contains Federal Funds.) To comply with the latest provisions of Build America, Buy America Act (BABA Act) of the Bipartisan Infrastructure Law, the contractor must submit a notarized original of the TxDOT Construction Material Buy America Certification Form for all items classified as construction materials. This form is not required for materials classified as a manufactured product. Refer to the Buy America Material Classification Sheet for clarification on material categorization. The Buy America Material Classification Sheet is located at the below link. <https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html> for clarification on material categorization.

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**Item 7. Legal Relations and Responsibilities**

The total area disturbed for this project is 0.68 acres. The disturbed area in this project, all project locations in the Contract, and the Contractor project specific locations (PSLs), within 1 mile of the project limits, for the Contract will further establish the authorization requirements for storm water discharges. The Department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction activities shown on the plans. The Contractor is to obtain required authorization from the TCEQ for Contractor PSLs for construction support activities on or off the right of way. When the total area disturbed in the Contract and PSLs within 1 mile of the project limits exceeds 5 acres, provide a copy of the Contractor NOI for PSLs on the right of way to the Engineer and to the local government that operates a separate storm sewer system.

Prevention of Migratory Bird Nesting

It is anticipated that migratory birds, a protected group of species, may try to nest on bridges, culverts, vegetation, or gravel substrate, at any time of the year. The preferred nesting season for migratory birds is from February 15 through October 1. When practicable, schedule construction operations outside of the preferred nesting season. Otherwise, avoid nests containing migratory birds and perform no work in the nesting areas until the young birds have fledged.

The following Holiday/Event lane closure restriction requirements apply to this project: No work that restricts or interferes with traffic shall be allowed between 3 PM on the day preceding a Holiday or Event and 9 AM on the day after the Holiday or Event.

Holiday Lane Closure Restrictions	
Labor Day Weekend (Friday through Monday)	3 PM Thursday through 9 AM Tuesday
Thanksgiving Holiday (Wednesday through Sunday)	3 PM Tuesday through 9 AM Monday

Plan work schedules around the appropriate dates above to ensure productive work is performed without lane closures.

**Item 8. Prosecution and Progress**

Working days will be computed and charged in accordance with Section 8.3.1.1, 'Five-Day Workweek.'

Prepare the progress schedule as a bar chart. include all planned work activities and sequences and show Contract completion within the number of working days specified. Submit an updated hard copy when changes to the schedule occur or when requested.

**Project Number:** F 2024(053)

**County:** TARRANT

**Control:** 0094-02-146

**Highway:** SH 183

**Item 100. Preparing Right of Way**

Measurement for this item will be along the centerline of the project with the limits of measurements as shown on the plans.

Work to be completed in accordance with this item includes:

- Removal of existing plants as shown
- Removal of existing irrigation as shown
- Removal of existing aggregate as shown
- Removal of existing mow strips as shown
- Cap existing irrigation lines to remain in preparation for reconnecting to new irrigation
- Disposal of all items above

**Item 170. Irrigation**

Contact **Jason Brown, City of Richland Hills** @ 817.616.3775 for installation of the water meter for the project. The Contractor is to pay for the installation & fees.

Electrical connection, to be made by a licensed electrician, to power source for the irrigation system and controllers is subsidiary to this item.

Irrigation system under this pay item is defined as the total system from the outlet of the water meters. Water meters and connection to water meters, as shown on construction plans and installation of water meters and associated fees is subsidiary to this item. It is understood that the irrigation maintenance will include and apply to all irrigation system locations.

**Item 192. Planting**

No planting shall occur between June 1st and September 15th without written approval from the Engineer.

Perform soil percolation test at least 24 hours prior to planting trees in plant pits. Excavate plant pit and fill entirely with water. Inspect planting pit within 24 hours to verify water has percolated into surrounding soil. In the event the water is present after 24 hours, contact Engineer before continuing tree planting in pits.

Prior to installing any plant material, ensure the irrigation system (if included in project) is pressurized up to the valves.

Begin the 90-day maintenance period only after all live plant material and functional irrigation systems have been installed as shown on plans.

General Notes

**Project Number:** F 2024(053)

**County:** TARRANT

**Control:** 0094-02-146

**Highway:** SH 183

It is understood that the contractor will provide 3" of bark mulch for the 30-gallon plant material subsidiary to item 192 6024. All other bark mulch areas are paid for under pay item 192 6012.

Per special provision 192---008 plant material requiring replacement will be at the cost of the contractor.

**Item 502.**

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

Access will be provided to all business and residences at all times. Where turning radii are limited during phased construction at intersections, provide all weather surfaces such as RAP or base in turning movements to accommodate and to protect the traffic from edge drop-offs. Materials, labor, maintenance and removal for these temporary accesses and radii will not be paid for directly but will be considered subsidiary to the various bid items.

Provide a person on the project at all times (24 hours/day, 7 days/week) to patrol, monitor, and maintain the traffic control devices and signs. The person must be knowledgeable of TxDOT Guidelines for traffic control devices and signs.

Provide written proposed lane closure information by 1:00 pm on the business day prior to the proposed closures. Do not close lanes when this requirement is not met.

When excavation is required next to a pavement lane carrying traffic and the widening is not completed by the end of the work day, backfill against the edge of the pavement with at least a 3:1 slope using an acceptable material to support vehicular traffic. Carefully remove and dispose of this material when work resumes. Backfilling pavement edges, and the materials required for the work will be subsidiary to this item.

Place barricades and signs in locations that do not obstruct the sight distance of drivers entering the highway from driveways or side streets.

Provide rectangular shape (CW12-2P) Temporary Clearance Signs on all bridges where the existing vertical clearance has changed. Install Signs to the satisfaction of the Engineer prior to opening to traffic. Plywood sign blanks will have minimum dimensions of 84" X 12". Work performed and materials are subsidiary to this item.

General Notes

Sheet **4B**

**Project Number:** F 2024(053)

**County:** TARRANT

**Control:** 0094-02-146

**Highway:** SH 183

Do not commence work on the road before sunrise. Do not operate or park any equipment/machinery closer than 30 feet from the traveled roadway after sunset unless authorized by the engineer.

When moving unlicensed equipment on or across any pavement or public highways, protect the pavement from all damage using an acceptable method.

As approved by the Engineer, provide uniformed off duty police officers and squad cars during lane or ramp closures, night time work or other situations that indicate a need for additional traffic control to protect the traveling public or the construction workforce. Provide documentation such as payroll, log sheets with signatures and badge number, or invoices from the government entity providing the officers for reimbursement. Complete the weekly tracking form provided by the department and submit invoices that agree with the tracking form for payment at the end of each month approved services were provided. Reimbursement will not be made for coordination fees charged by any party.

Limit lane closures along US 380 to the hours between 9:00 am and 3:30 pm. Work in other areas of the project is not restricted to this time frame.

Storm water BMP's will be subsidiary to item 502-6001.

**Item 506. Temporary Erosion, Sedimentation, and Environmental Controls**

Remove accumulated sediment or replace SW3P controls when the capacity has been reduced by 50% or when the depth of sediment at the control structure exceeds one foot.



CONTROLLING PROJECT ID 0094-02-146

DISTRICT Fort Worth  
HIGHWAY SH 183

COUNTY Tarrant

# Estimate & Quantity Sheet

CONTROL SECTION JOB				0094-02-146		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00194418			
COUNTY				Tarrant			
HIGHWAY				SH 183			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	100-6002	PREPARING ROW	STA	49.000		49.000	
	161-6018	COMPOST MANUF TOPSOIL	CY	818.390		818.390	
	170-6001	IRRIGATION SYSTEM	LS	1.000		1.000	
	192-6001	PLANT MATERIAL (4" CNTR)	EA	6,921.000		6,921.000	
	192-6002	PLANT MATERIAL (1-GAL)	EA	815.000		815.000	
	192-6003	PLANT MATERIAL (3-GAL)	EA	361.000		361.000	
	192-6004	PLANT MATERIAL (5-GAL)	EA	231.000		231.000	
	192-6012	MULCH	CY	205.000		205.000	
	192-6016	PLANT BED PREPARATION	SY	68.000		68.000	
	192-6024	PLANT MATERIAL (30 GAL) (TREE)	EA	15.000		15.000	
	193-6001	PLANT MAINTENANCE	MO	12.000		12.000	
	193-6007	IRRIGATION SYSTEM OPER AND MAINT	MO	12.000		12.000	
	500-6001	MOBILIZATION	LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	4.000		4.000	
	506-6040	BIODEG EROSN CONT LOGS (IN STL) (8")	LF	583.000		583.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	583.000		583.000	
	1005-6001	LOOSE AGGR FOR GROUND COVER (TYPE I)	CY	42.000		42.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	

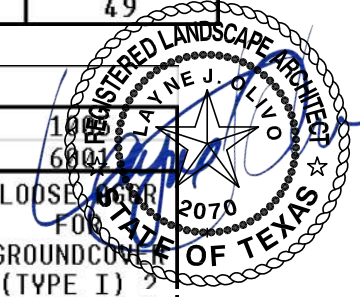


SUMMARY OF MOBILIZATION ITEMS		
LOCATION	500	502
	6001	6001
	MOBILIZATION	BARRICADES, SIGNS AND TRAFFIC HANDLING
	LS	MO
<b>PROJECT TOTALS</b>	<b>1</b>	<b>4</b>

SUMMARY OF EROSION CONTROL ITEMS		
LOCATION	506	506
	6040	6043
	BIODEG EROSN CONT LOGS (INSTR) (8")	BIODEG EROSN CONT LOGS (REMOVE)
	LF	LF
SHEET 1 (BEGIN PROJECT STA 367+50 TO STA 379+50)		
	199	199
SHEET 2 (STA STA 379+50 TO STA 395+00)		
	267	267
SHEET 3 (STA 395+00 TO STA 412+00)		
	67	67
SHEET 4 (STA 412+00 TO STA 415+00)		
	708	708
<b>PROJECT TOTALS</b>	<b>1241</b>	<b>1241</b>

SUMMARY OF REMOVAL ITEMS	
LOCATION	100
	6002
	PREPARING ROW
	STA
32	0
33	12
34	17
35	17
36	3
37	0
<b>PROJECT TOTALS</b>	<b>49</b>

SUMMARY OF LANDSCAPE ITEMS												
LOCATION	161	170	192	192	192	192	192	192	192	193	193	193
	6018	6001	6001	6002	6003	6004	6012	6016	6024	6001	6007	6001
	COMPOST MANUF TOPSOIL (2 IN. DEPTH)	IRRIGATION SYSTEM	PLANT MATERIAL (4" CNTR) PURPLE WINTERCREEPER	PLANT MATERIAL (1-GAL) CATMINT	PLANT MATERIAL (3-GAL) SNOW WHITE INDIAN HAWTHORN	PLANT MATERIAL (5-GAL) CREEPING JUNIPER	MULCH (3 IN. DEPTH)	PLANT BED PREPARATION	PLANT MATERIAL (30 GAL) (TREE) TEXAS REDBUD	PLANT MAINTENANCE	IRRIGATION SYSTEM OPER AND MAINT	LOOSE GROUND COVER (TYPE I) in to 3 in DECORATIVE ROCK
	CY	LS	EA	EA	EA	EA	CY	SY	EA	MO	MO	CY
SHEET 41	20.02		1016	132	40	33	41	14	9	x		5
SHEET 42	45.19		2562	333	146	46	82	27	6	x		13
SHEET 43	70.15		3265	350	175	152	115	38		x		20
SHEET 44	1.04		78				7	2		x		5
SHEET 48		x									x	
SHEET 49		x									x	
SHEET 50		x									x	
SHEET 51		x									x	
<b>PROJECT TOTALS</b>	<b>137</b>	<b>1</b>	<b>6921</b>	<b>815</b>	<b>361</b>	<b>231</b>	<b>245</b>	<b>82</b>	<b>15</b>	<b>12</b>	<b>12</b>	<b>43</b>



CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.

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Texas Department of Transportation

## QUANTITY SUMMARY

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	06
STATE	DISTRICT	COUNTY
TEXAS	FTW	TARRANT
CONTROL	SECTION	JOB
0094	02	146
		HIGHWAY NO.
		SH 183

DATE: 06/13/2023

TRAFFIC CONTROL GENERAL NOTES

MAINTENANCE OF WORK ZONE TRAFFIC CONTROL DEVICES:

THOSE PORTIONS OF THE PROJECT WHICH REQUIRE CONSTRUCTION WHERE TRAFFIC PASSES NEARBY WILL BE MAINTAINED SUCH THAT THE TRAVEL LANES ARE FREE AND CLEAR OF ALL DEBRIS AT ALL TIME AND ALL TRAFFIC HANDLING DEVICES ARE IN GOOD CONDITION AND ACCEPTABLE TO THE ENGINEER. THIS WORK WILL BE SUBSIDIARY TO THE VARIOUS BID ITEMS.

THE CONTRACTOR SHALL MAINTAIN ALL TRAFFIC CONTROL DEVICES AND WORK ZONE PAVEMENT MARKINGS SUCH THAT THEY WILL BE KEPT IN A HIGHLY VISIBLE CONDITION (CLEAN, UPRIGHT, AND PROPER LOCATION). AT ALL TIMES THE CONTRACTOR SHALL REPLACE ANY DAMAGED TRAFFIC CONTROL DEVICES TO MEET THE REQUIREMENTS SHOWN IN THE TMUTCD, TCP, AND BC STANDARDS, AND TO THE SATISFACTION OF THE ENGINEER. PAYMENT FOR THIS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO BID ITEM 502 ;BARRICADES, SIGNS, AND TRAFFIC HANDLINGK.

SIGNING:

THE CONTRACTOR SHALL TEMPORARILY COVER EXISTING SIGNS THAT ARE IN CONFLICT WITH THE SUGGESTED TRAFFIC CONTROL PLAN OR THE INTENT THEREOF.

EXISTING SIGNS THAT DO NOT CONFLICT WITH THE SUGGESTED TRAFFIC CONTROL PLAN OR THE INTENT THEREOF, BUT REQUIRE RELOCATION DUE TO PHYSICAL CONFLICTS SHALL NOT BE RELOCATED UNTIL TEMPORARY SIGN SUPPORTS HAVE BEEN INSTALLED TO ALLOW FOR THE IMMEDIATE RELOCATION OF ANY SUCH SIGNS.

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TWO TRAILER MOUNTED FLASHING ARROW PANELS (IN WORKING ORDER) AT ALL TIMES AT THE PROJECT SITE TO BE USED WHEN NEEDED AS DIRECTED BY THE ENGINEER. PAYEMNT FOR THIS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO BID ITEM 502 ;BARRICADES, SIGNS, AND TRAFFIC HANDLINGK.

GENERAL:

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS OF ITEM 7 ;LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLICK OF THE GENERAL REQUIREMENTS AND COVENANTS OF THE STANDARD SPECIFICATIONS.

INSTALLATION AND MAINTENANCE OF ALL WORK ZONE SIGNS, BARRICADES, AND PAVEMENT MARKINGS IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL CONFORM TO THE BARRICADE AND CONSTRUCTION (BC) STANDARDS AND/OR THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).

CONSTRUCTION IN ANY AREA THAT IS ADVERSELY AFFECTING TRAFFIC FLOW AND SAFETY MUST BE PURSUED DILIGENTLY BY THE CONTRACTOR. IN THE OPINION OF THE ENGINEER, IF THE CONTRACTOR IS NOT DILIGENTLY PURSUING THE CONSTRUCTION IN THOSE AREAS, THEN THE ENGINEER MAY REQUIRE THE CONTRACTOR TO CHANGE HIS WORK SCHEDULE TO EXPEDITE COMPLETION IN THOSE AREAS OF CONCERN.

TRAFFIC CONTROL PLAN NARRATIVE

1. CONTRACTOR SHALL UTILIZE ONLY SHORT TERM STATIONARY TRAFFIC CONTROL LANE CLOSURES IN ACCORDANCE WITH TCP(1-5)-18.
2. ONLY ONE AREA MAY BE WORKED ON AT A TIME, SUCH THAT A MAXIMUM OF ONE LANE MAY BE CLOSED IN EACH DIRECTION.
3. LANE CLOSURES MAY BE MAINTAINED FOR A MAXIMUM OF ONE DAY AT A TIME.
4. IF NEEDED, TCP(1-5)-18 DETAIL TCP(1-5b) MAY BE USED TO PROVIDE A LEFT TURN LANE AT INTERSECTIONS.

ADVANCED WARNING SIGNAGE:

1. IMPLEMENT TRAFFIC CONTROL FOR ADVANCE WARNING SIGNAGE IN ACCORDANCE WITH TCP(1-5)-18 FOR EACH SECTION OF WORK.

SEQUENCE OF CONSTRUCTION:

1. INSTALL CHANNELIZING DEVICES, BARRICADES, AND SIGNAGE IN ACCORDANCE WITH TCP(1-5)-18.
2. INSTALL/MAINTAIN DOWNSTREAM SW3P DEVICES IN ACCORDANCE WITH EROSION CONTROL PLANS.
3. COMPLETE WORK IN ACCORDANCE WITH DEMOLITION, PLANTING AND IRRIGATION PLANS.
4. CLEAN UP WORKZONE, REMOVE TRAFFIC CONTROL DEVICES AND ALLOW TRAFFIC.
5. REMOVE SW3P DEVICES AFTER FINAL VEGETATION HAS BEEN ACHIEVED.

17/11/2023 10:00 AM

17/11/2023 10:00 AM

17/11/2023 10:00 AM

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17/11/2023 10:00 AM

17/11/2023 10:00 AM

17/11/2023 10:00 AM

17/11/2023 10:00 AM

STATE OF TEXAS  
 CONNOR R. GUERRERO  
 140690  
 PROFESSIONAL ENGINEER  
 TPELS ENGINEERING FIRM #312  
 05/19/2023

halff  
 4000 FOSSIL CREEK BLVD  
 FORT WORTH, TEXAS  
 76137  
 TEL (817) 847-1422

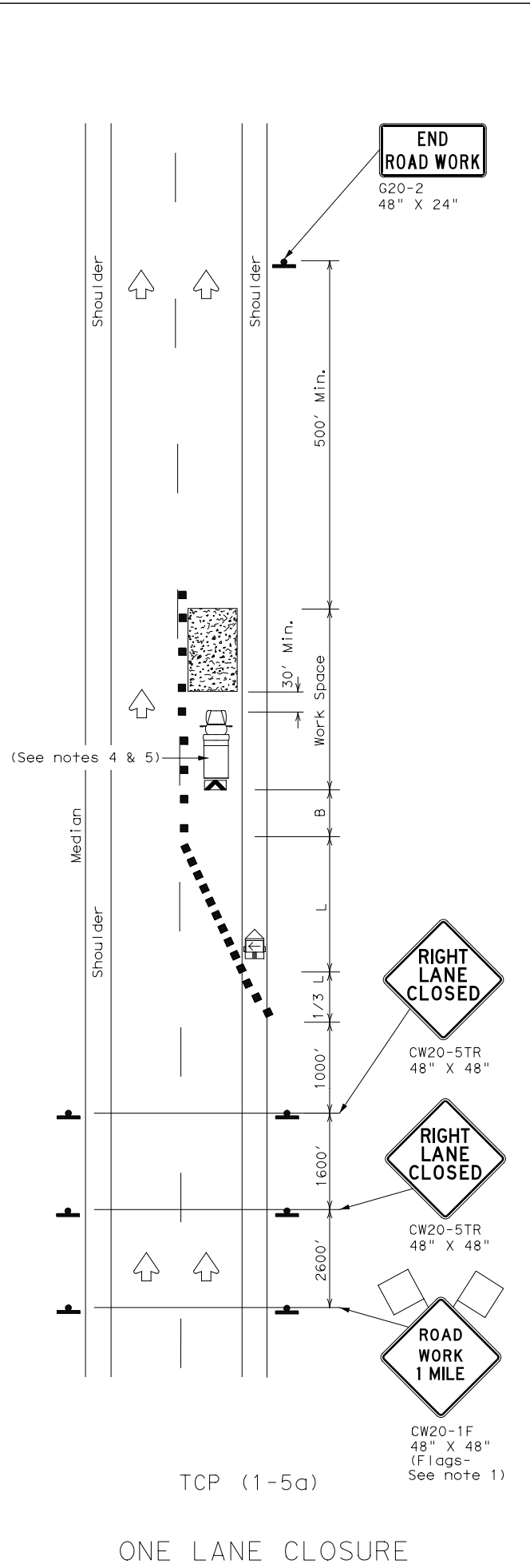


**TRAFFIC CONTROL PLAN  
 GENERAL NOTES & NARRATIVE**

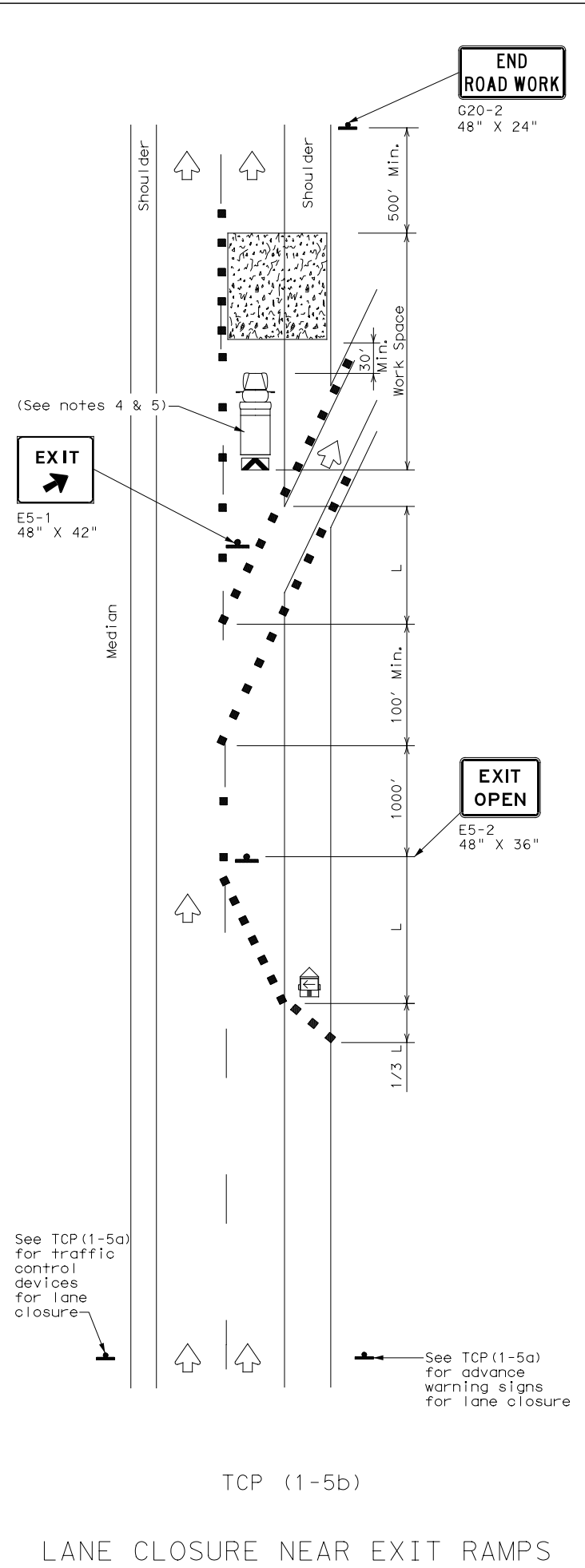
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6	SEE TITLE SHEET	7
STATE	DISTRICT	COUNTY
TEXAS	FTW	TARRANT
CONTROL	SECTION	JOB
0094	02	146
		HIGHWAY NO.
		SH 183

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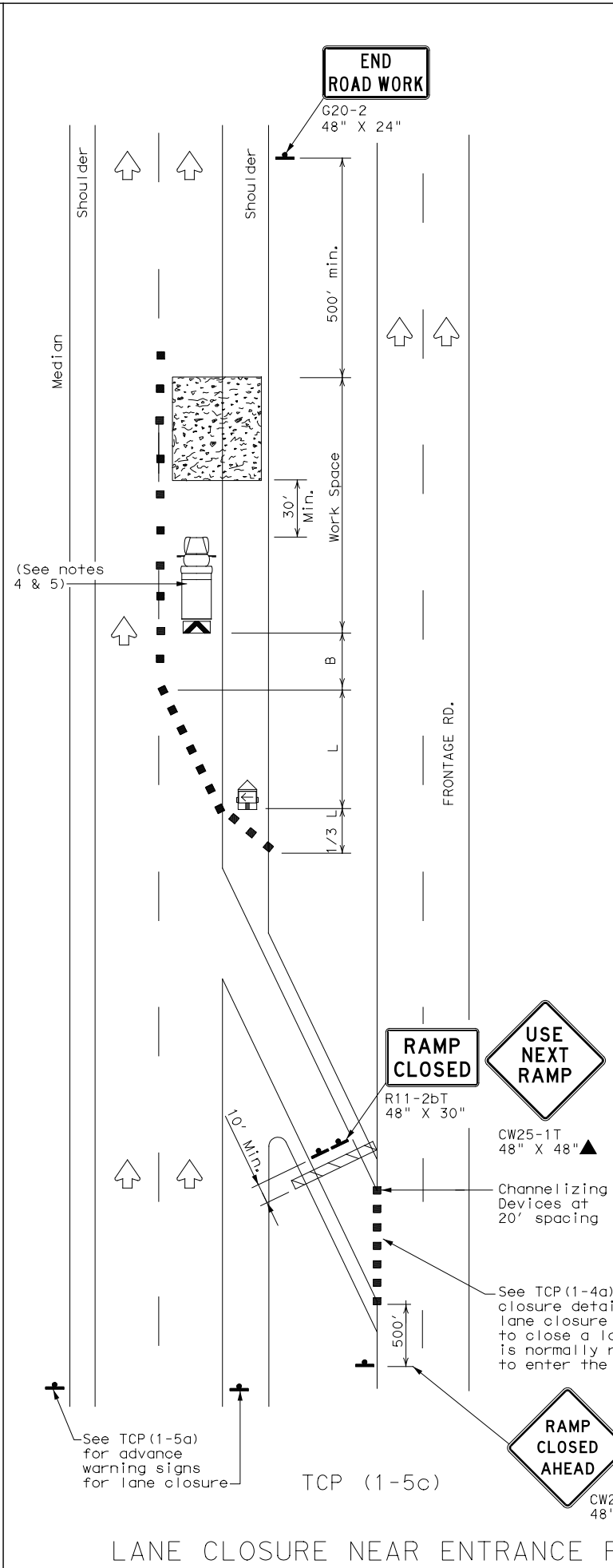
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TCP (1-5a)  
ONE LANE CLOSURE



TCP (1-5b)  
LANE CLOSURE NEAR EXIT RAMP



TCP (1-5c)  
LANE CLOSURE NEAR ENTRANCE RAMP

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓		

- GENERAL NOTES
- Flags attached to signs where shown, are REQUIRED.
  - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
  - Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
  - Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
  - Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.



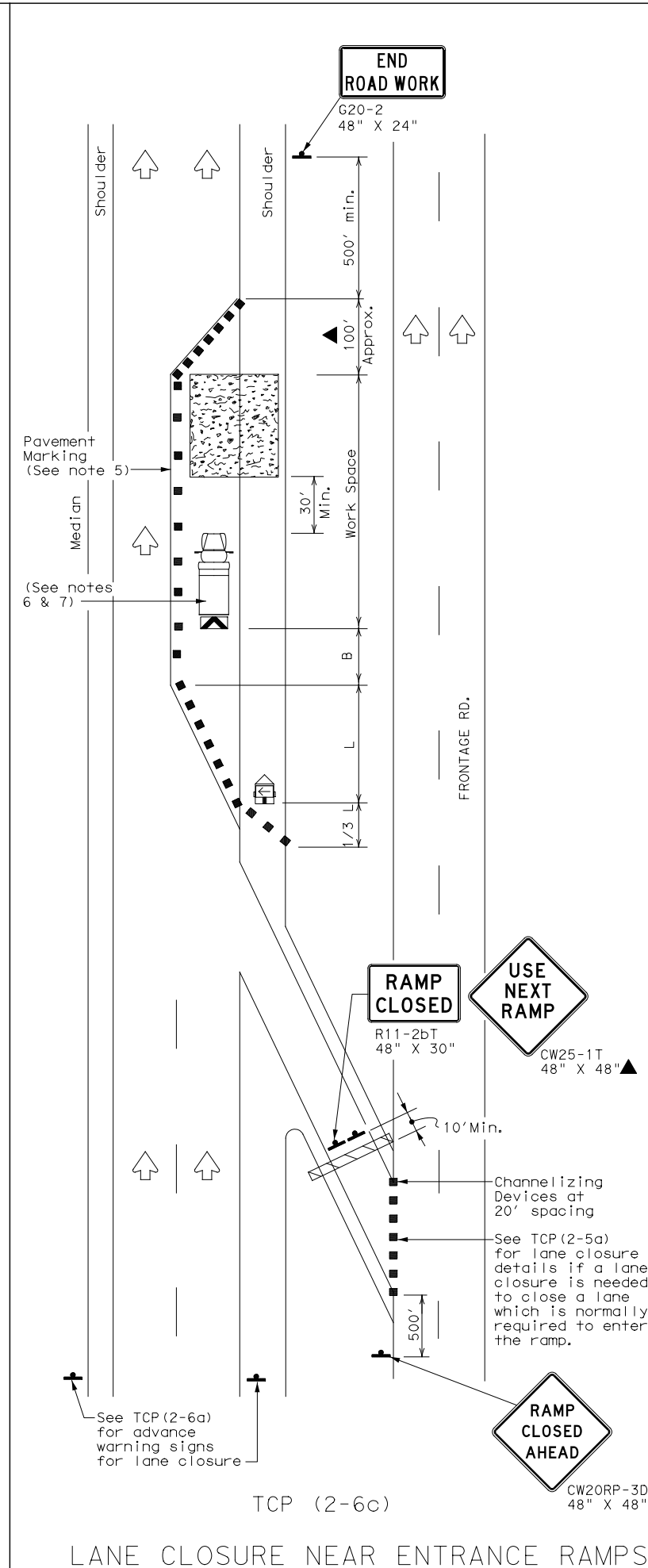
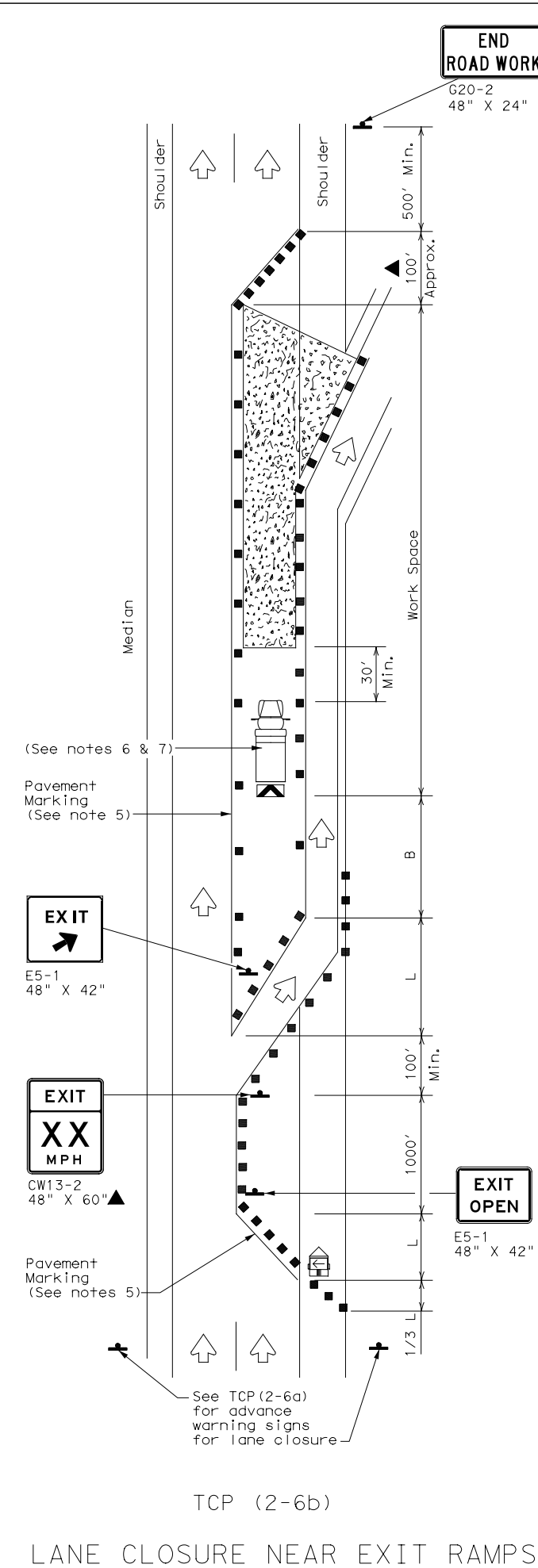
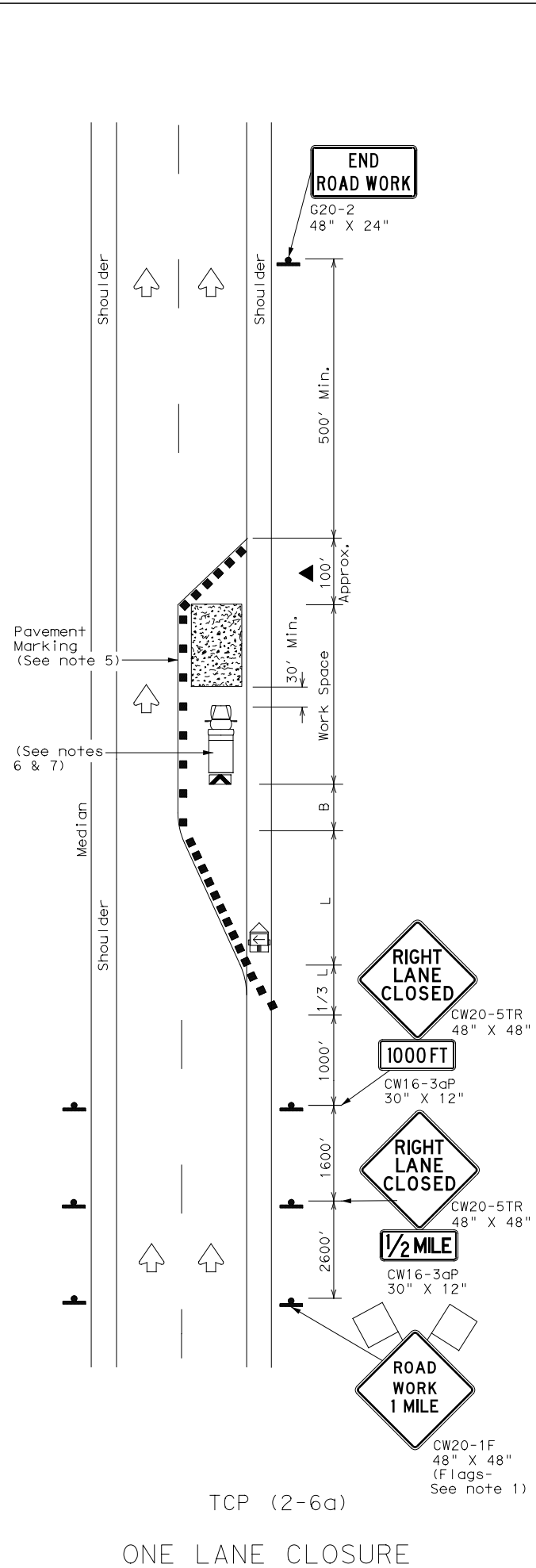
TRAFFIC CONTROL PLAN  
LANE CLOSURES FOR  
DIVIDED HIGHWAYS

TCP (1-5) - 18

FILE: tcp1-5-18.dgn	DN:	CK:	DW:	CK:
© TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
2-18	0094	02	146	SH 183
	DIST	COUNTY	SHEET NO.	
	FTW	TARRANT	8	

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**LEGEND**

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70	700'	770'	840'	70'	140'	800'	475'	
75	750'	825'	900'	75'	150'	900'	540'	

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

**TYPICAL USAGE**

	MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
				✓	✓

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
  - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
  - Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
  - Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on every other channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
  - The placement of pavement markings may be omitted on intermediate-term stationary work zones with the approval of the Engineer.
  - Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
  - Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.



**TRAFFIC CONTROL PLAN  
 LANE CLOSURES ON  
 DIVIDED HIGHWAYS**

**TCP (2-6) - 18**

FILE: tcp2-6-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0094	02	146	SH 183
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 2-12	FTW	TARRANT	9	
1-97 2-18				

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**BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:**

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.
6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.
11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.
12. The Engineer has the final decision on the location of all traffic control devices.
13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

**WORKER SAFETY NOTES:**

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.
2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

**COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES**

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.
2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT <a href="http://www.txdot.gov">http://www.txdot.gov</a>
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS) "
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS



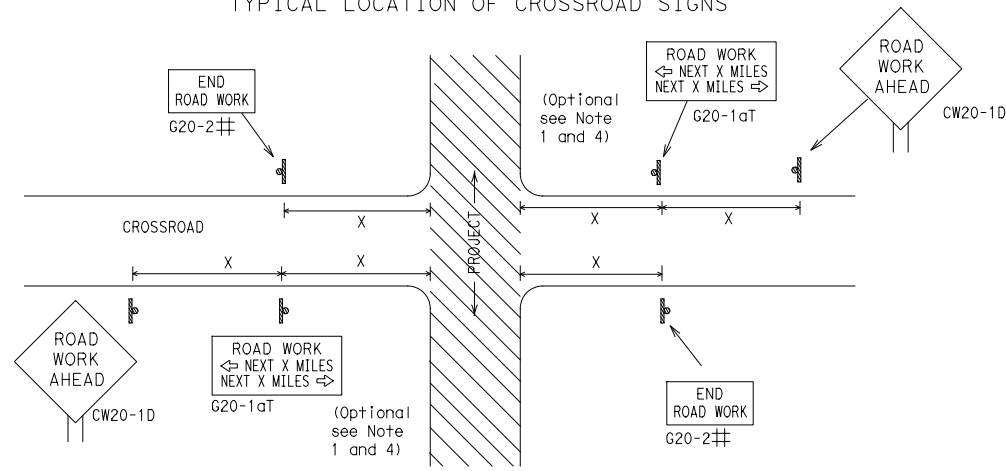
**BARRICADE AND CONSTRUCTION  
 GENERAL NOTES  
 AND REQUIREMENTS**

**BC (1) - 21**

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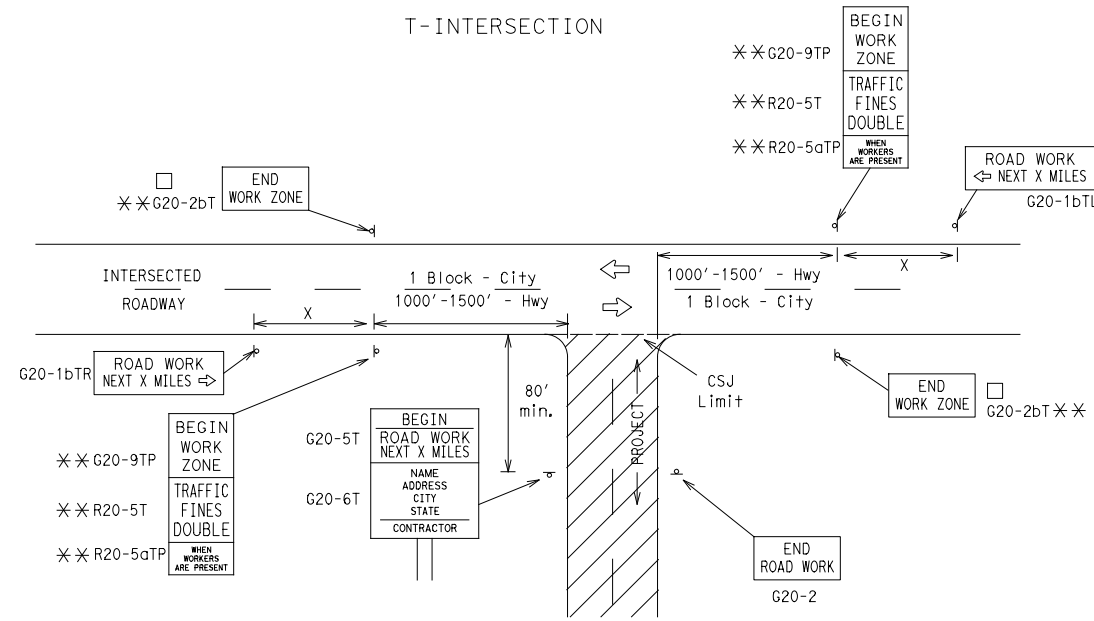
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TYPICAL LOCATION OF CROSSROAD SIGNS



- ## May be mounted on back of "ROAD WORK AHEAD" (CW20-1D) sign with approval of Engineer. (See note 2 below)
- The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D) sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
  - The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK" (G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume as per TMUTCD Part 5. This information shall be shown in the plans.
  - Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
  - The "ROAD WORK NEXT X MILES" (G20-1aT) sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
  - Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
  - When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

- The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
- If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME" (G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow (G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR) signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING<sup>1,5,6</sup>

Sign Number or Series	SIZE		SPACING	
	Conventional Road	Expressway/Freeway	Posted Speed MPH	Sign Spacing "X" Feet (Apprx.)
CW20 <sup>4</sup>	48" x 48"	48" x 48"	30	120
CW21			35	160
CW22			40	240
CW23			45	320
CW25			50	400
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"	55	500 <sup>2</sup>
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"	60	600 <sup>2</sup>
			65	700 <sup>2</sup>
			70	800 <sup>2</sup>
			75	900 <sup>2</sup>
			80	1000 <sup>2</sup>
			*	* <sup>3</sup>

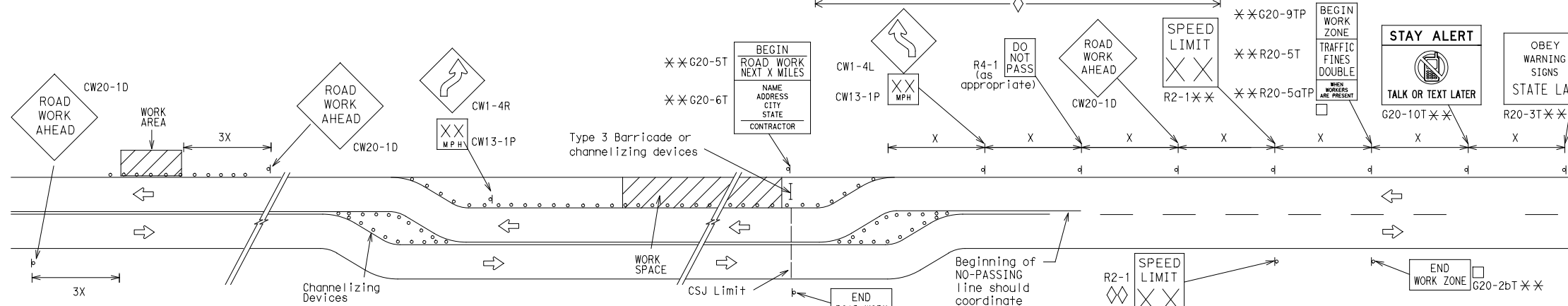
\* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

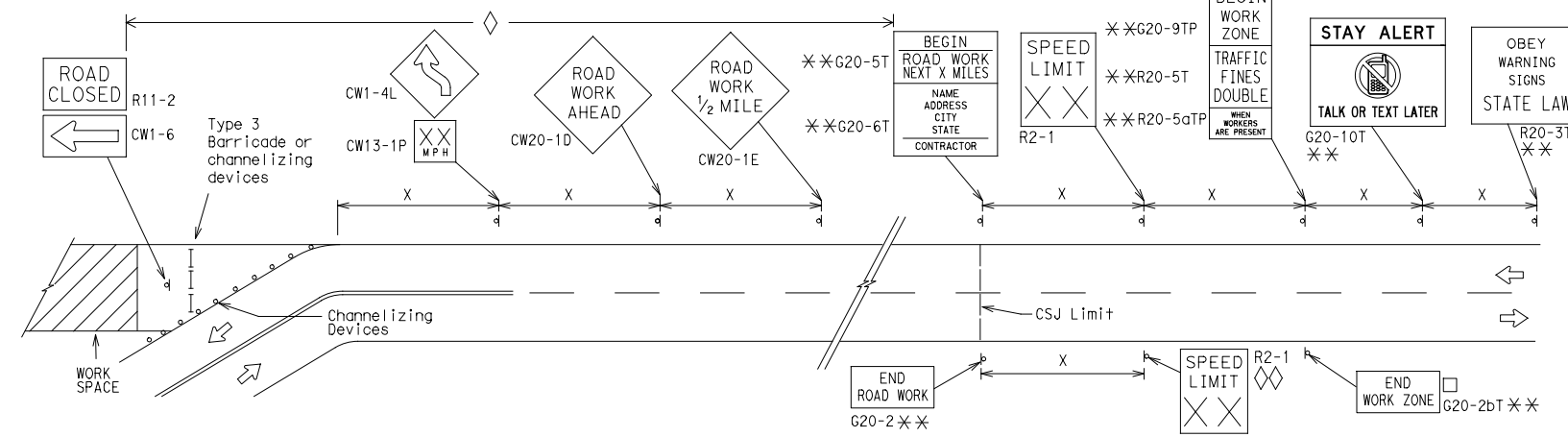
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
- Only diamond shaped warning sign sizes are indicated.
- See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

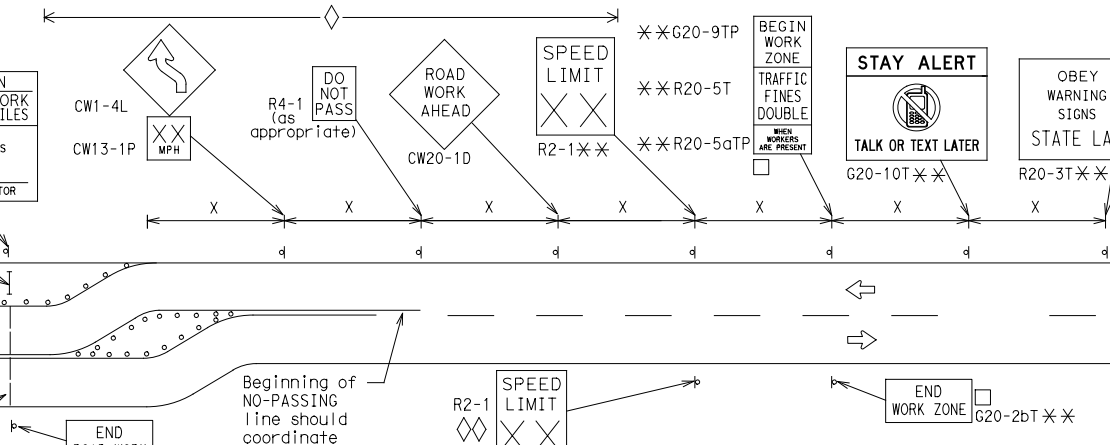


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



NOTES

- The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES" (G20-5T) sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.
- The "BEGIN WORK ZONE" (G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.
  - \*\* CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.
  - ◇ Area for placement of "ROAD WORK AHEAD" (CW20-1D) sign and other signs or devices as called for on the Traffic Control Plan.
  - ◇◇ Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND	
—	Type 3 Barricade
○ ○ ○	Channelizing Devices
■	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

SHEET 2 OF 12



BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

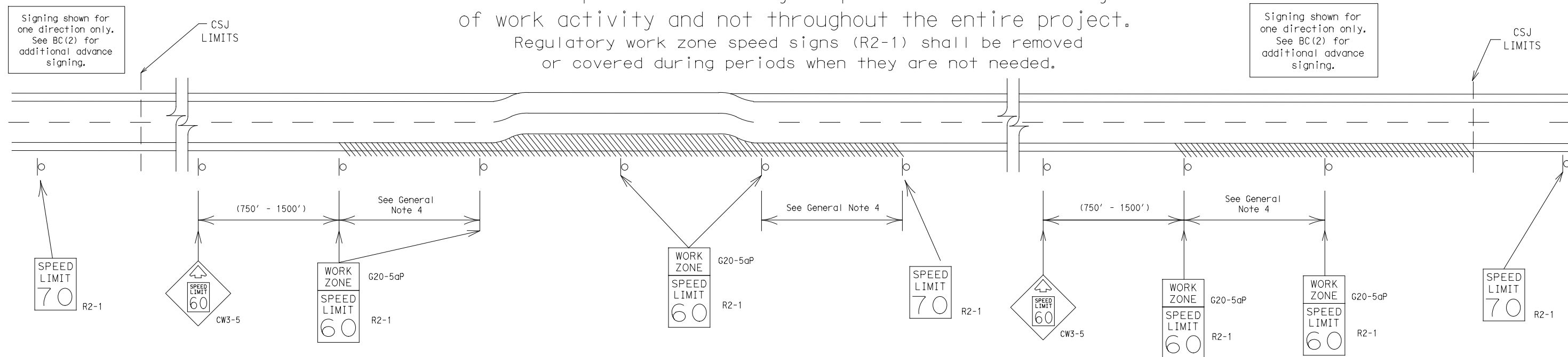
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# TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project. Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



## GUIDANCE FOR USE:

### LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

- rough road or damaged pavement surface
- substantial alteration of roadway geometrics (diversions)
- construction detours
- grade
- width
- other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

### SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the traveled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered. (See Removing or Covering on BC(4)).

## GENERAL NOTES

- Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
- Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
- Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
- Frequency of work zone speed limit signs should be:
  - 40 mph and greater 0.2 to 2 miles
  - 35 mph and less 0.2 to 1 mile
- Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
- Fabrication, erection and maintenance of the "ADVANCE SPEED LIMIT" (CW3-5) sign, "WORK ZONE" (G20-5aP) plaque and the "SPEED LIMIT" (R2-1) signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
- Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
- Techniques that may help reduce traffic speeds include but are not limited to:
  - Law enforcement.
  - Flagger stationed next to sign.
  - Portable changeable message sign (PCMS).
  - Low-power (drone) radar transmitter.
  - Speed monitor trailers or signs.
- Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
- For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

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SHEET 3 OF 12



## BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

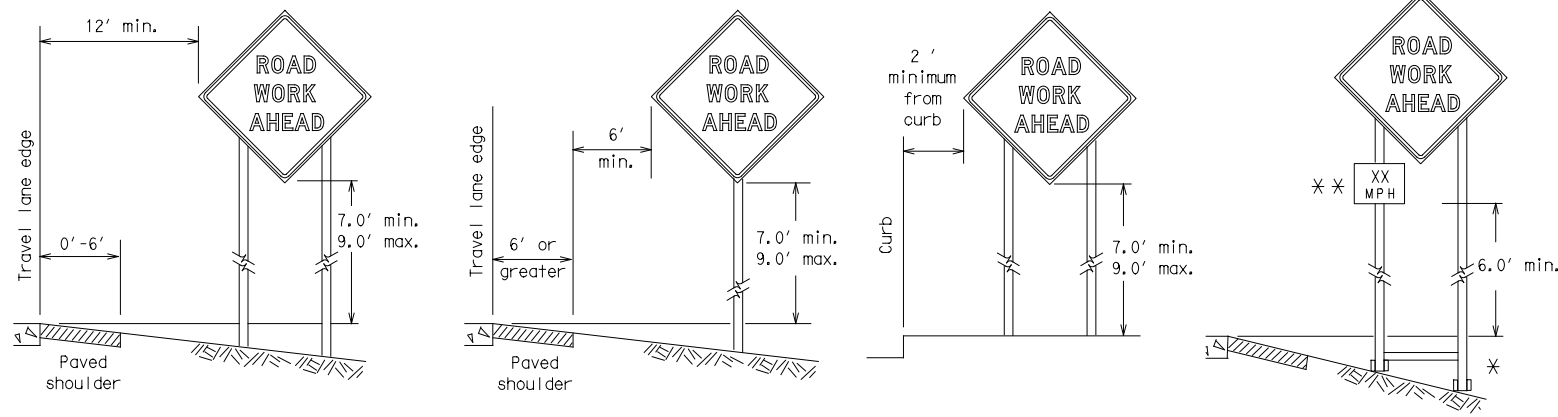
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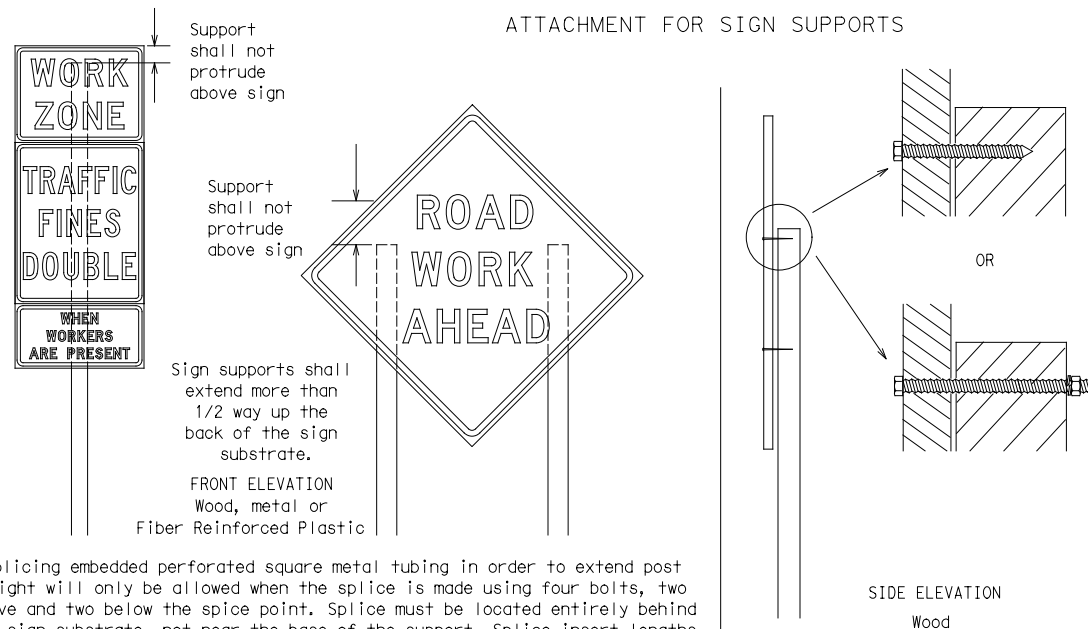
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



\* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

\*\* When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS



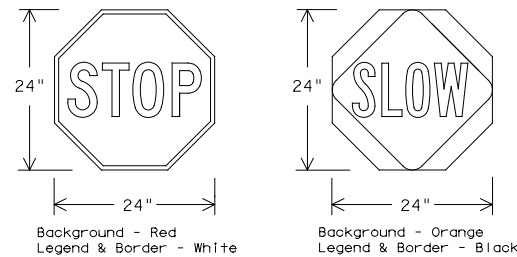
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed.  
 Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the splice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
2. STOP/SLOW paddles shall be retroreflectorized when used at night.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B <sub>FL</sub> OR C <sub>FL</sub> SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (LOGO), or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRs standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
  - a. Long-term stationary - work that occupies a location more than 3 days.
  - b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
  - c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
  - d. Short, duration - work that occupies a location up to 1 hour.
  - e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B<sub>FL</sub> or Type C<sub>FL</sub>, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. Flags may be used to draw attention to warning signs. When used, the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.



BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

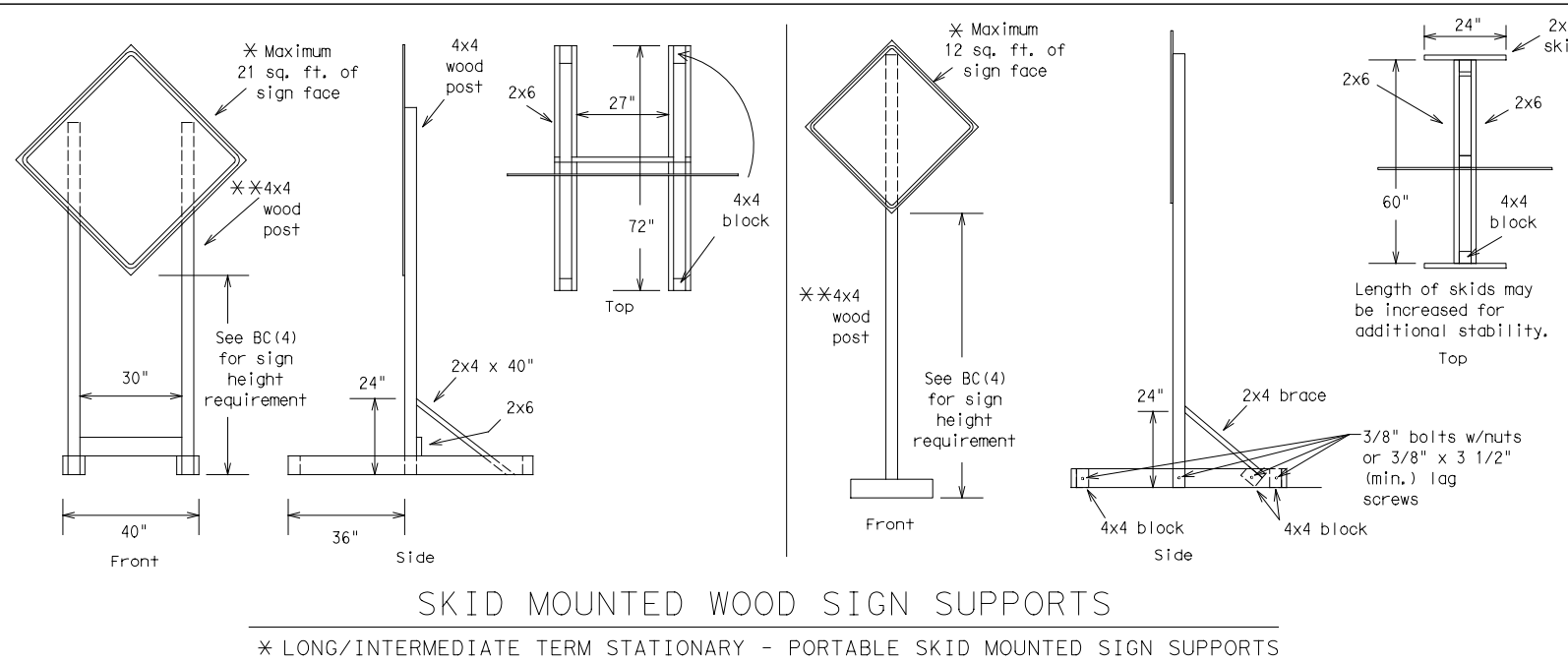
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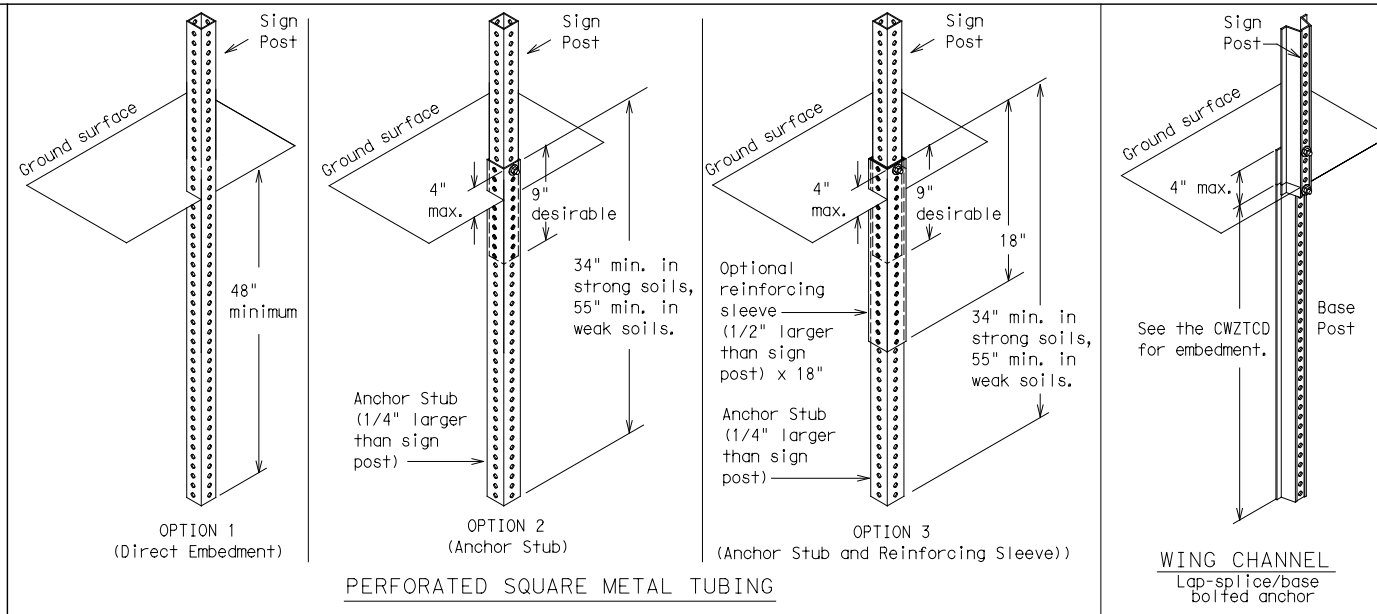
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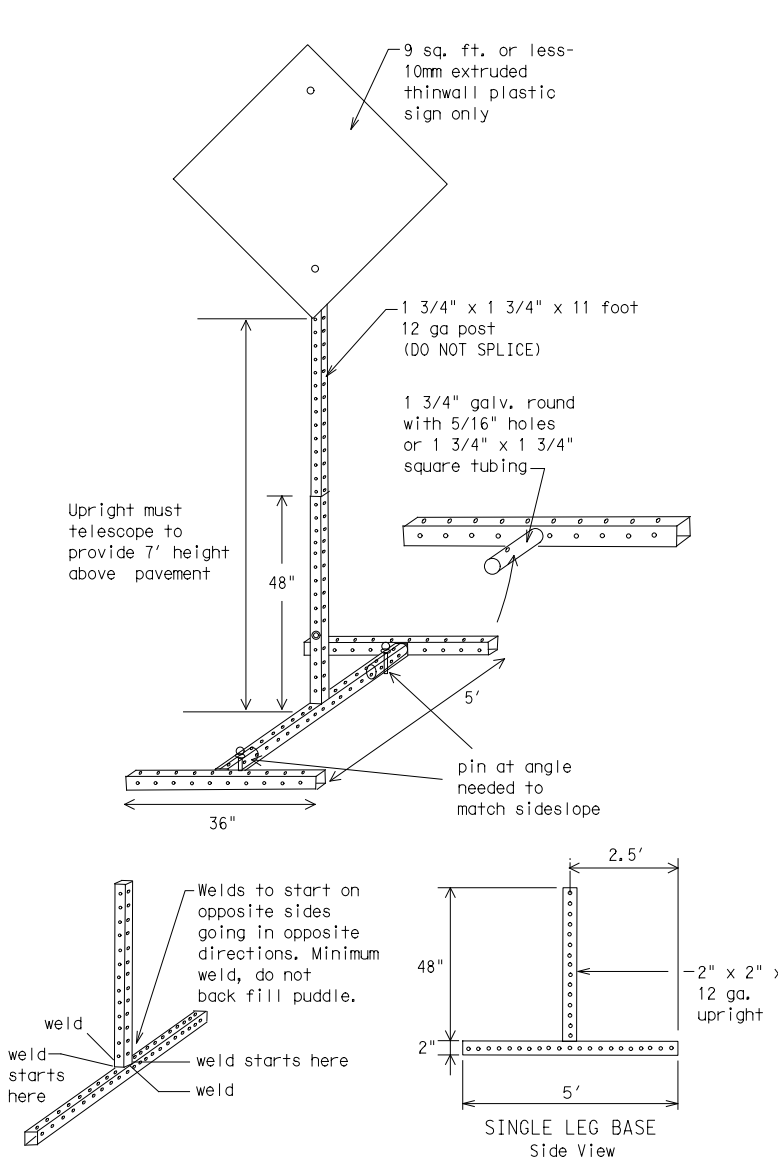
**SKID MOUNTED WOOD SIGN SUPPORTS**

\* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS



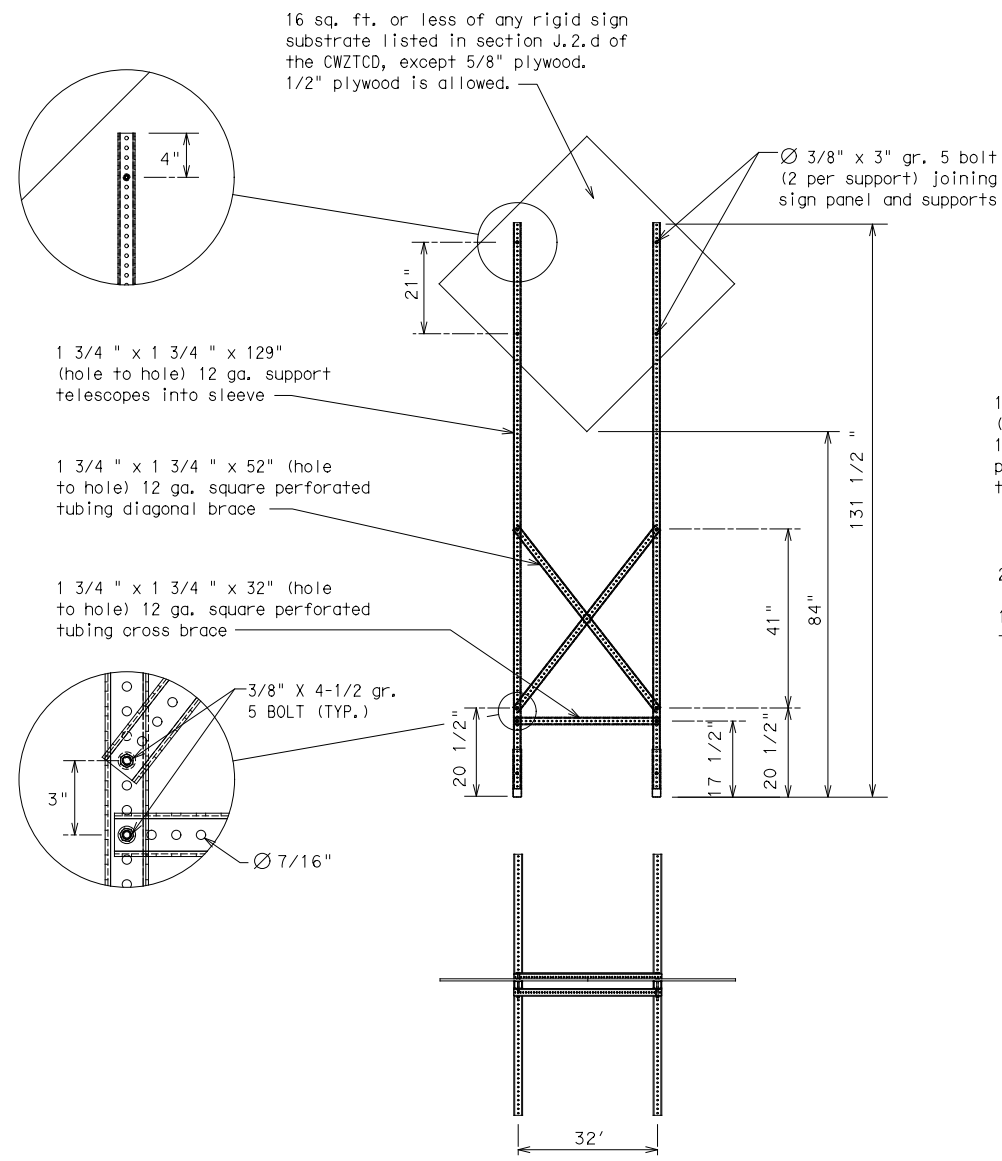
**GROUND MOUNTED SIGN SUPPORTS**

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support. The maximum sign square footage shall adhere to the manufacturer's recommendation. Two post installations can be used for larger signs.



**SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS**

\* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS



**WEDGE ANCHORS**

Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

**OTHER DESIGNS**

MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

**GENERAL NOTES**

- Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
- No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
- When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

- \* See BC(4) for definition of "Work Duration."
- \*\* Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.
- See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

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**BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT**

BC(5)-21

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9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	FTW	TARRANT	14	

WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

# RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

## PORTABLE CHANGEABLE MESSAGE SIGNS

- The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
- Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
- Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
- Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
- Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
- When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
- The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
- The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
- Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
- Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
- Do not use the word "Danger" in message.
- Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
- Do not display messages that scroll horizontally or vertically across the face of the sign.
- The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
- PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
- Each line of text should be centered on the message board rather than left or right justified.
- If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

WORD OR PHRASE	ABBREVIATION	WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD	Major	MAJ
Alternate	ALT	Miles	MI
Avenue	AVE	Miles Per Hour	MPH
Best Route	BEST RTE	Minor	MNR
Boulevard	BLVD	Monday	MON
Bridge	BRDG	Normal	NORM
Cannot	CANT	North	N
Center	CTR	Northbound	(route) N
Construction Ahead	CONST AHD	Parking	PKING
CROSSING	XING	Road	RD
Detour Route	DETOUR RTE	Right Lane	RT LN
Do Not	DONT	Saturday	SAT
East	E	Service Road	SERV RD
Eastbound	(route) E	Shoulder	SHLDR
Emergency	EMER	Slippery	SLIP
Emergency Vehicle	EMER VEH	South	S
Entrance, Enter	ENT	Southbound	(route) S
Express Lane	EXP LN	Speed	SPD
Expressway	EXPWY	Street	ST
XXXX Feet	XXXX FT	Sunday	SUN
Fog Ahead	FOG AHD	Telephone	PHONE
Freeway	FRWY, FWY	Temporary	TEMP
Freeway Blocked	FWY BLKD	Thursday	THURS
Friday	FRI	To Downtown	TO DWNTN
Hazardous Driving	HAZ DRIVING	Traffic	TRAF
Hazardous Material	HAZMAT	Travelers	TRVLR
High-Occupancy Vehicle	HOV	Tuesday	TUES
Highway	HWY	Time Minutes	TIME MIN
Hour(s)	HR, HRS	Upper Level	UPR LEVEL
Information	INFO	Vehicles (s)	VEH, VEHS
It Is	ITS	Warning	WARN
Junction	JCT	Wednesday	WED
Left	LFT	Weight Limit	WT LIMIT
Left Lane	LFT LN	West	W
Lane Closed	LN CLOSED	Westbound	(route) W
Lower Level	LWR LEVEL	Wet Pavement	WET PVMT
Maintenance	MAINT	Will Not	WONT

Roadway designation # IH-number, US-number, SH-number, FM-number

## Phase 1: Condition Lists

### Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE
ROAD CLOSED AT SH XXX
ROAD CLSD AT FM XXXX
RIGHT X LANES CLOSED
CENTER LANE CLOSED
NIGHT LANE CLOSURES
VARIOUS LANES CLOSED
EXIT CLOSED
MALL DRIVEWAY CLOSED
XXXXXXXX BLVD CLOSED

### Other Condition List

FRONTAGE ROAD CLOSED
SHOULDER CLOSED XXX FT
RIGHT LN CLOSED XXX FT
RIGHT X LANES OPEN
DAYTIME LANE CLOSURES
I-XX SOUTH EXIT CLOSED
EXIT XXX CLOSED X MILE
RIGHT LN TO BE CLOSED
X LANES CLOSED TUE - FRI

ROADWORK XXX FT
FLAGGER XXXX FT
RIGHT LN NARROWS XXXX FT
MERGING TRAFFIC XXXX FT
LOOSE GRAVEL XXXX FT
DETOUR X MILE
ROADWORK PAST SH XXXX
BUMP XXXX FT
TRAFFIC SIGNAL XXXX FT

ROAD REPAIRS XXXX FT
LANE NARROWS XXXX FT
TWO-WAY TRAFFIC XX MILE
CONST TRAFFIC XXX FT
UNEVEN LANES XXXX FT
ROUGH ROAD XXXX FT
ROADWORK NEXT FRI-SUN
US XXX EXIT X MILES
LANES SHIFT *

\* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

## Phase 2: Possible Component Lists

### Action to Take/Effect on Travel List

MERGE RIGHT
DETOUR NEXT X EXITS
USE EXIT XXX
STAY ON US XXX SOUTH
TRUCKS USE US XXX N
WATCH FOR TRUCKS
EXPECT DELAYS
REDUCE SPEED XXX FT
USE OTHER ROUTES
STAY IN LANE *

### Location List

AT FM XXXX
BEFORE RAILROAD CROSSING
NEXT X MILES
PAST US XXX EXIT
XXXXXXXX TO XXXXXXX
US XXX TO FM XXXX

### Warning List

SPEED LIMIT XX MPH
MAXIMUM SPEED XX MPH
MINIMUM SPEED XX MPH
ADVISORY SPEED XX MPH
RIGHT LANE EXIT
USE CAUTION
DRIVE SAFELY
DRIVE WITH CARE

### \*\* Advance Notice List

TUE-FRI XX AM-X PM
APR XX-XX X PM-X AM
BEGINS MONDAY
BEGINS MAY XX
MAY X-X XX PM - XX AM
NEXT FRI-SUN
XX AM TO XX PM
NEXT TUE AUG XX
TONIGHT XX PM-XX AM

\*\* See Application Guidelines Note 6.

## APPLICATION GUIDELINES

- Only 1 or 2 phases are to be used on a PCMS.
- The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
- A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
- A Location Phase is necessary only if a distance or location is not included in the first phase selected.
- If two PCMS are used in sequence, they must be separated by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
- For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

## WORDING ALTERNATIVES

- The words RIGHT, LEFT and ALL can be interchanged as appropriate.
- Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
- EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
- Highway names and numbers replaced as appropriate.
- ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
- AHEAD may be used instead of distances if necessary.
- FT and MI, MILE and MILES interchanged as appropriate.
- AT, BEFORE and PAST interchanged as needed.
- Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

## FULL MATRIX PCMS SIGNS

- When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
- When symbol signs, such as the "Flagger Symbol" (CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
- When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
- A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

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BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

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REVISIONS	0094	02	146	SH 183
9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	FTW	TARRANT	15	

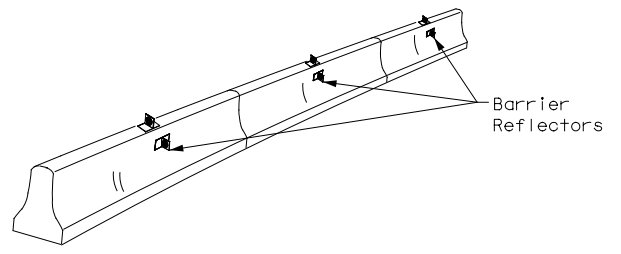
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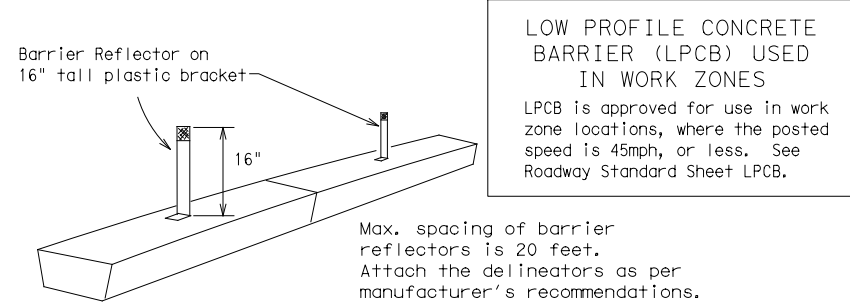
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



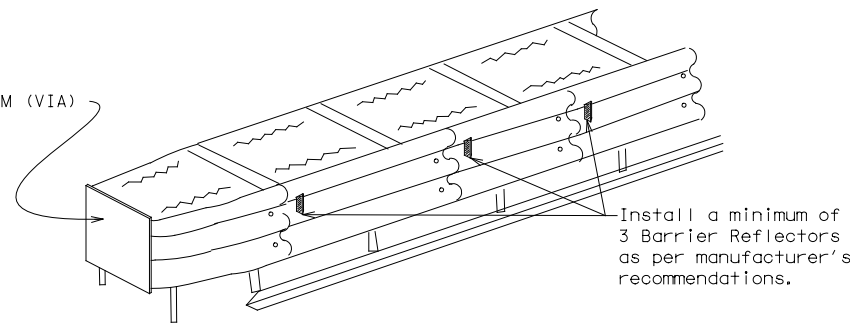
CONCRETE TRAFFIC BARRIER (CTB)

- Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
- Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional) while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
- When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
- Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
- Maximum spacing of Barrier Reflectors is forty (40) feet.
- Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
- Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
- Single slope barriers shall be delineated as shown on the above detail.



LOW PROFILE CONCRETE BARRIER (LPCB)

**LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES**  
 LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.



DELINEATION OF END TREATMENTS

**END TREATMENTS FOR CTB'S USED IN WORK ZONES**  
 End treatments used on CTB's in work zones shall meet the appropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

**BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS**

**WARNING LIGHTS**

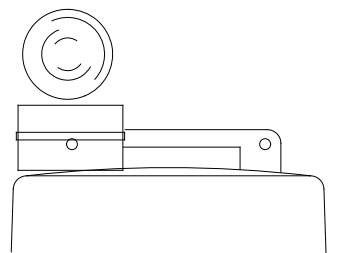
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B<sub>FL</sub> or C<sub>FL</sub> Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
- Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
- The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
- When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
- When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
- The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

**WARNING LIGHTS MOUNTED ON PLASTIC DRUMS**

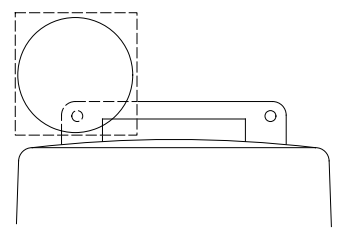
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
- Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
- Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
- Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
- The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

**WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS**

- A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
- The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
- The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
- Round reflectors shall be fully reflectorized, including the area where attached to the drum.
- Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
- The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
- When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
- The warning reflector should be mounted on the side of the handle nearest approaching traffic.
- The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.



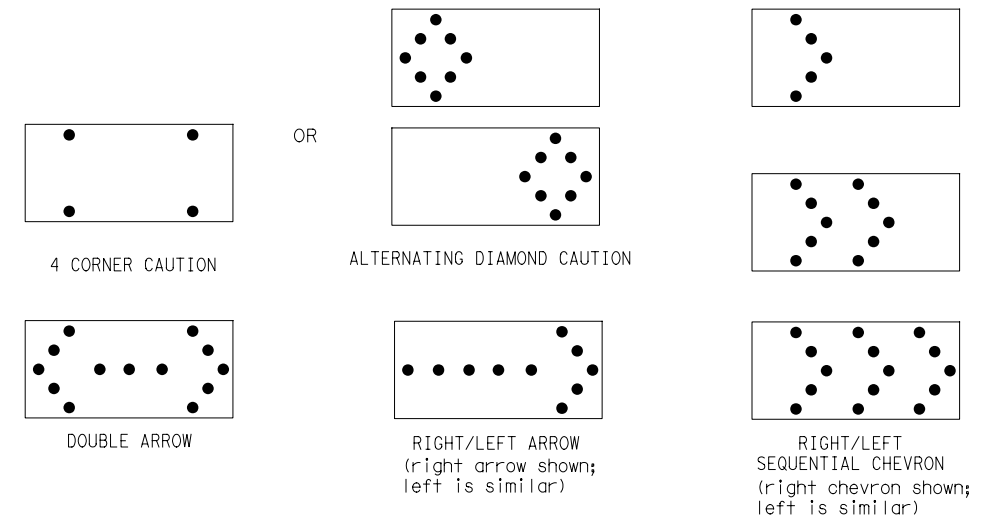
Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

- The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
- Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
- The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
- The Flashing Arrow Board should be able to display the following symbols:



- The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
- Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
- The sequential arrow display is NOT ALLOWED.
- The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
- The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
- A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
- A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
- Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

**ATTENTION**  
 Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

**FLASHING ARROW BOARDS**

SHEET 7 OF 12

**TRUCK-MOUNTED ATTENUATORS**

- Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
- Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
- Refer to the CWZTCD for a list of approved TMAs.
- TMAs are required on freeways unless otherwise noted in the plans.
- A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
- The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.



**BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR**

BC (7) - 21

FILE:	bc-21.dgn	DN:	TxDOT	CK:	TxDOT	DW:	TxDOT	CK:	TxDOT
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**GENERAL NOTES**

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
- For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
- Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
- The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

**GENERAL DESIGN REQUIREMENTS**

Pre-qualified plastic drums shall meet the following requirements:

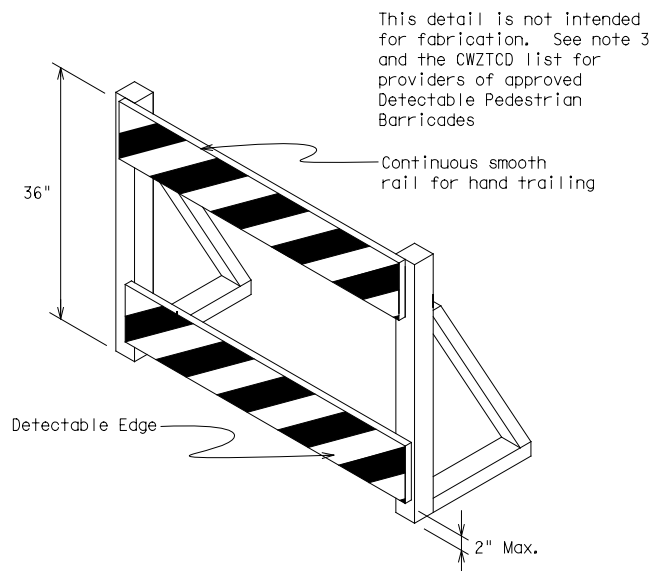
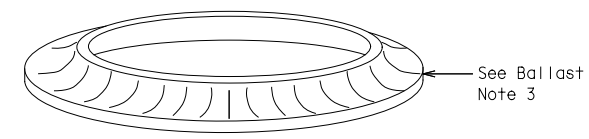
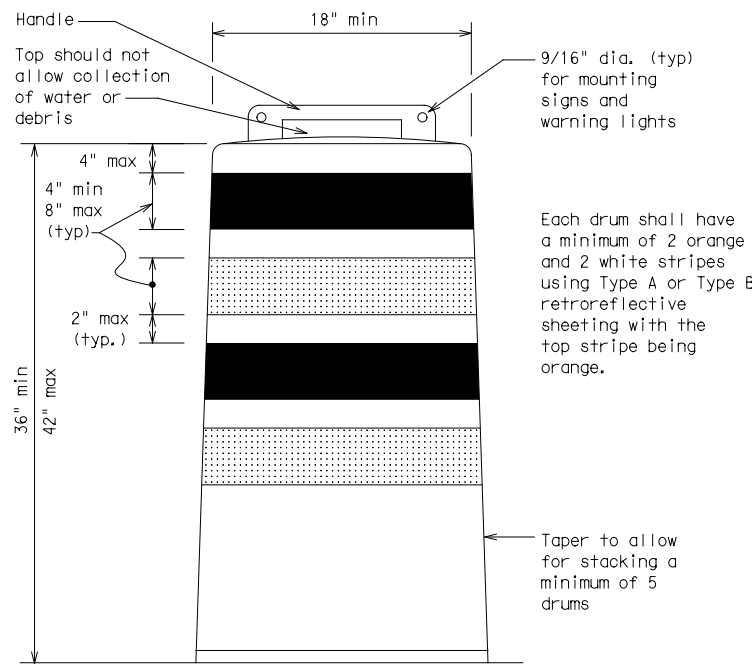
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
- Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
- Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
- The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
- The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
- Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
- Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
- Drum body shall have a maximum unballasted weight of 11 lbs.
- Drum and base shall be marked with manufacturer's name and model number.

**RETROREFLECTIVE SHEETING**

- The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
- The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

**BALLAST**

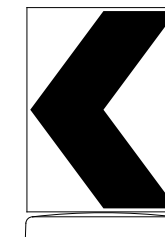
- Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
- Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
- Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
- The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
- When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
- Ballast shall not be placed on top of drums.
- Adhesives may be used to secure base of drums to pavement.



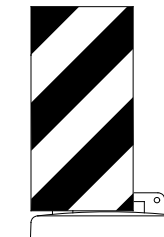
This detail is not intended for fabrication. See note 3 and the CWZTCD list for providers of approved Detectable Pedestrian Barricades

**DETECTABLE PEDESTRIAN BARRICADES**

- When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
- Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
- Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
- Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
- Warning lights shall not be attached to detectable pedestrian barricades.
- Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign  
(Maximum Sign Dimension)  
Chevron CW1-8, Opposing Traffic Lane  
Divider, Driveway sign D70a, Keep Right  
R4 series or other signs as approved  
by Engineer



12" x 24"  
Vertical Panel  
mount with diagonals  
sloping down towards  
travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

**SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS**

- Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
- Chevrons and other work zone signs with an orange background shall be manufactured with Type B<sub>FL</sub> or Type C<sub>FL</sub> Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
- Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
- Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
- Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
- Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
- Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
- R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

SHEET 8 OF 12



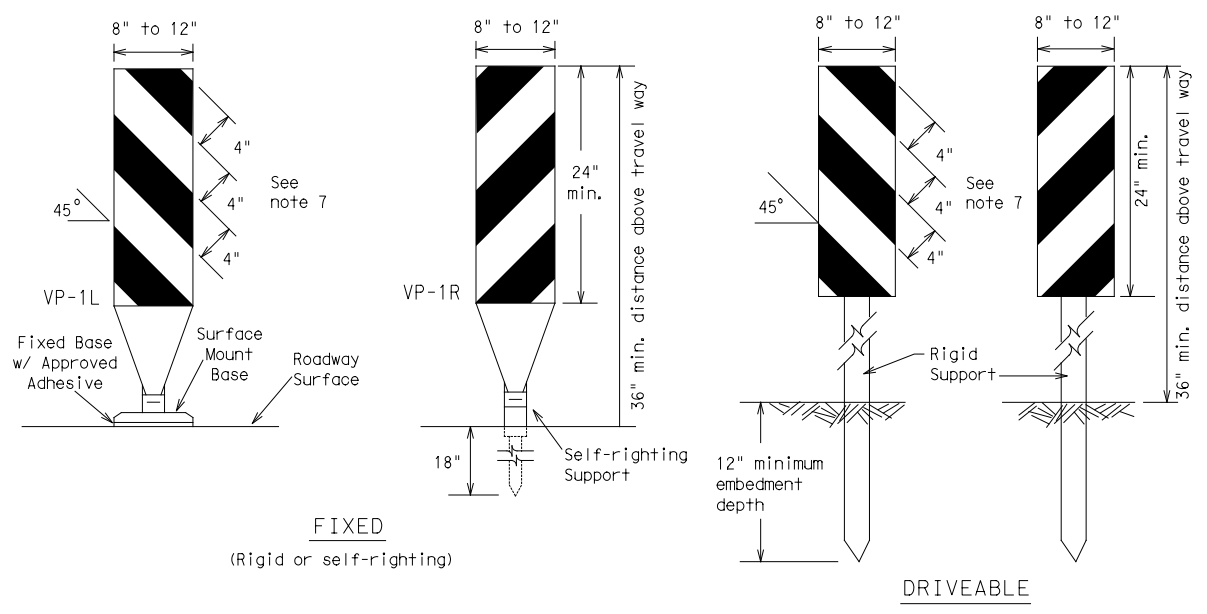
**BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES**

BC(8)-21

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7-13									
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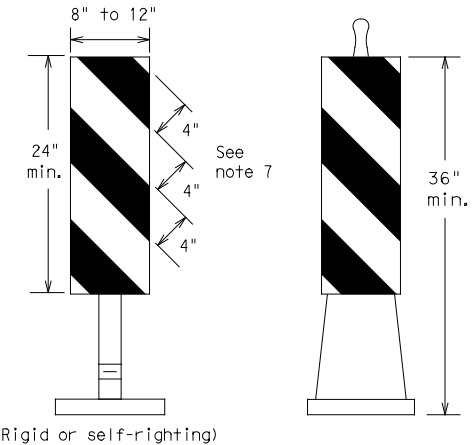
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**FIXED**  
(Rigid or self-righting)

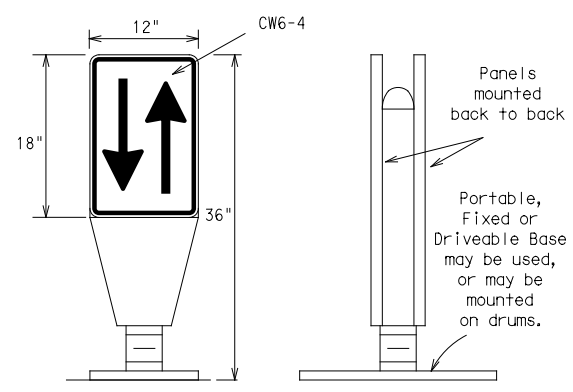
**DRIVEABLE**



**PORTABLE**

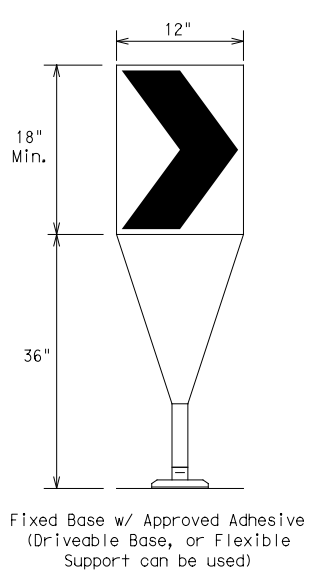
**VERTICAL PANELS (VPs)**

- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
- VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
- VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
- Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
- Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



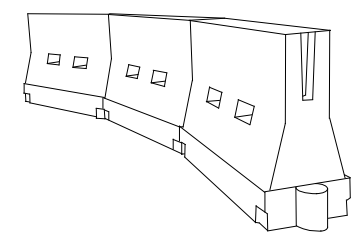
**OPPOSING TRAFFIC LANE DIVIDERS (OTLD)**

- Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
- The OTLD may be used in combination with 42" cones or VPs.
- Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
- The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B<sub>FL</sub> or Type C<sub>FL</sub> conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.



- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
- Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
- To be effective, the chevron should be visible for at least 500 feet.
- Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B<sub>FL</sub> or Type C<sub>FL</sub> conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
- For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

**CHEVRONS**



**LONGITUDINAL CHANNELIZING DEVICES (LCD)**

- LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
- LCDs may be used instead of a line of cones or drums.
- LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
- LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
- LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

**WATER BALLASTED SYSTEMS USED AS BARRIERS**

- Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
- Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
- Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
- When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

**HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS**

**GENERAL NOTES**

- Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
- Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
- Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
- Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
- The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.

Posted Speed	Formula	Minimum Desirable Taper Lengths * * *			Suggested Maximum Spacing of Channelizing Devices	
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent
30	L = WS <sup>2</sup> / 60	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L = WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

\* \* \*Taper lengths have been rounded off.  
 L=Length of Taper (FT.) W=Width of Offset (FT.)  
 S=Posted Speed (MPH)

**SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS**

SHEET 9 OF 12



**BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES**

BC (9) - 21

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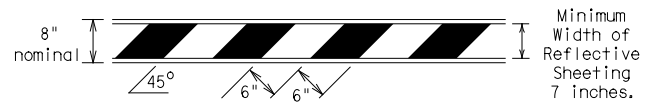
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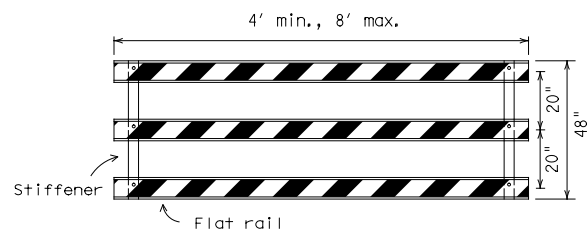
**TYPE 3 BARRICADES**

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.

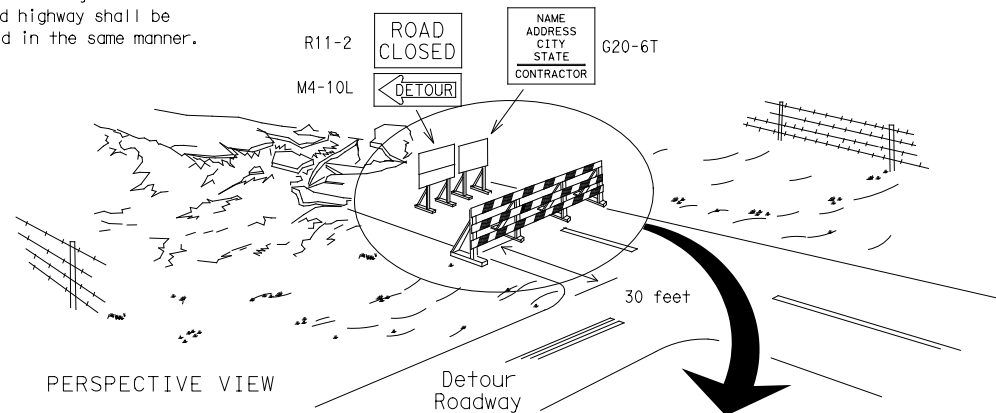


**TYPICAL STRIPING DETAIL FOR BARRICADE RAIL**



**TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES**

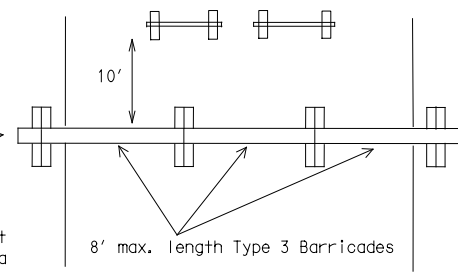
Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

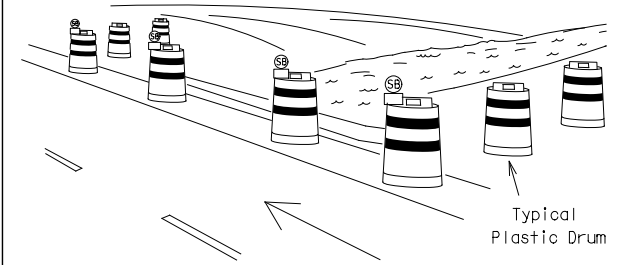
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.

1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

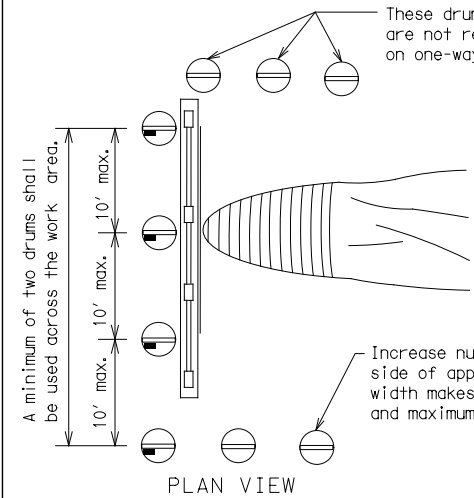


PLAN VIEW

**TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION**



PERSPECTIVE VIEW

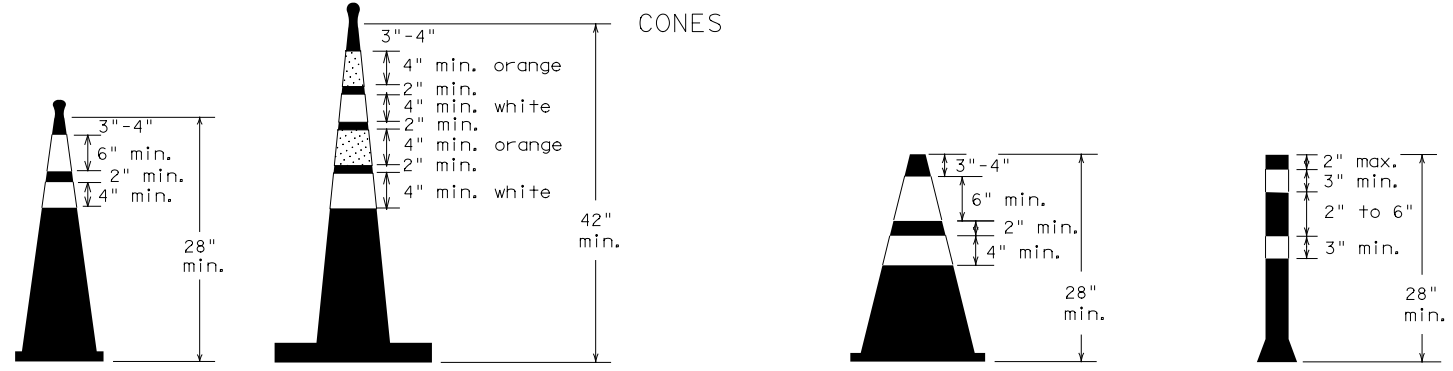


PLAN VIEW

1. Where positive redirection capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.

LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
	Steady burn warning light or yellow warning reflector

**CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS**



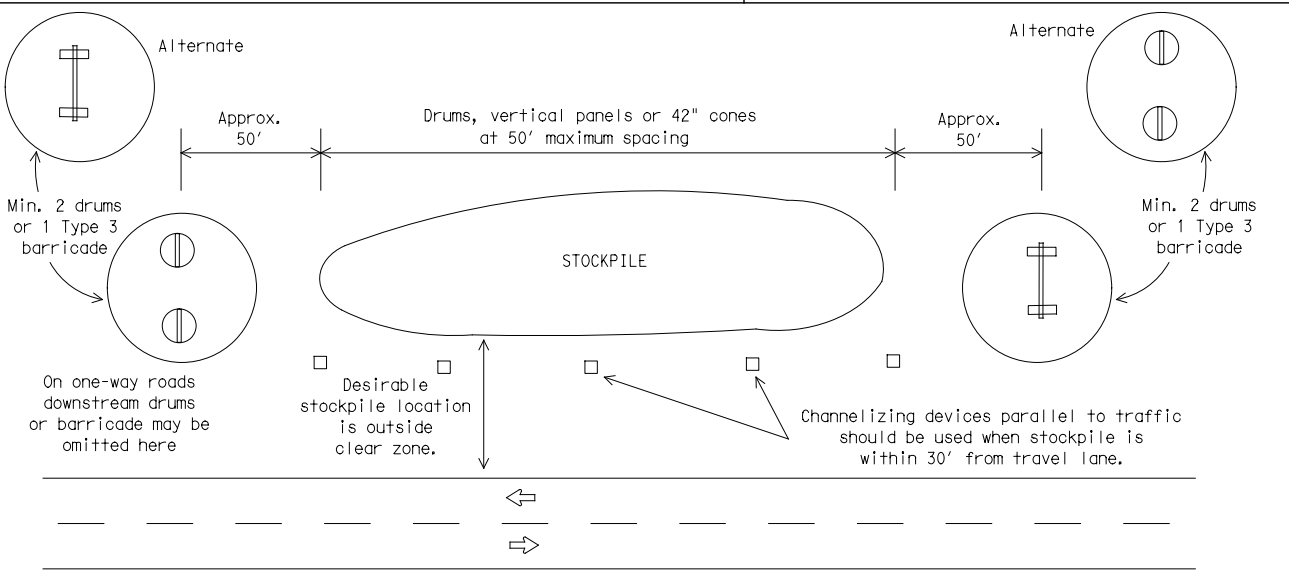
Two-Piece cones

One-Piece cones

Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.  
 42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



**TRAFFIC CONTROL FOR MATERIAL STOCKPILES**



**BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES**

**BC(10)-21**

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WORK ZONE PAVEMENT MARKINGS

GENERAL

- The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
- Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Additional supplemental pavement marking details may be found in the plans or specifications.
- Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
- When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
- When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
- All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

- Raised pavement markers are to be placed according to the patterns on BC(12).
- All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

- Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
- Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

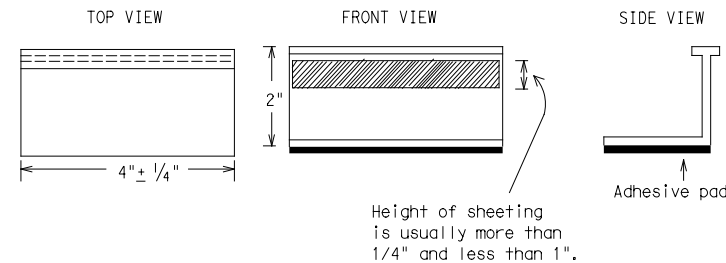
MAINTAINING WORK ZONE PAVEMENT MARKINGS

- The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
- Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
- The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
- Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

- Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
- The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
- Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
- The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
- Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
- Blast cleaning may be used but will not be required unless specifically shown in the plans.
- Over-painting of the markings SHALL NOT BE permitted.
- Removal of raised pavement markers shall be as directed by the Engineer.
- Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
- Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

- Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
- Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
  - Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
  - Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
- Small design variances may be noted between tab manufacturers.
- See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

- Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
- All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
- Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:  
 YELLOW - (two amber reflective surfaces with yellow body).  
 WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

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SHEET 11 OF 12

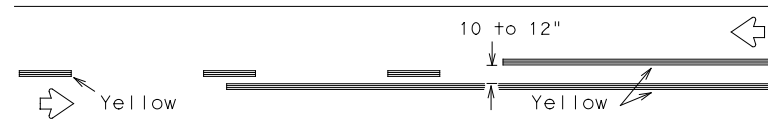


BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

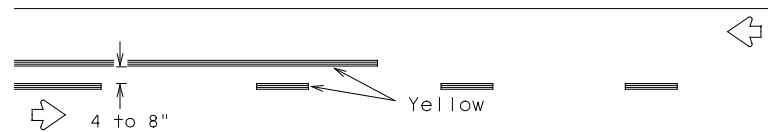
BC(11)-21

FILE:	bc-21.dgn	DN:	TxDOT	CK:	TxDOT	DW:	TxDOT	CK:	TxDOT
©TxDOT	February 1998	CONT	SECT	JOB	HIGHWAY				
REVISIONS		0094	02	146	SH 183				
2-98	9-07	5-21	DIST		COUNTY	SHEET NO.			
1-02	7-13			FTW	TARRANT	20			
11-02	8-14								

## PAVEMENT MARKING PATTERNS

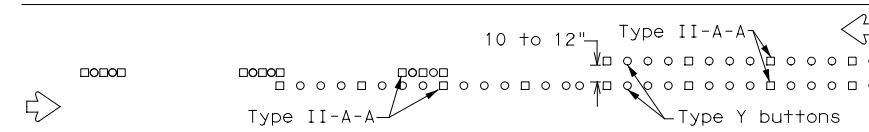


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

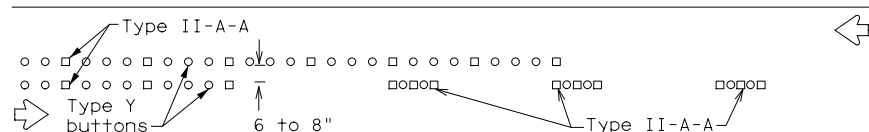


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectorized pavement markings.

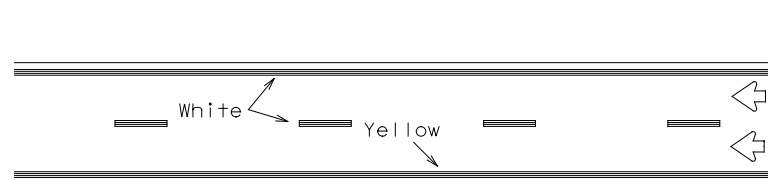


RAISED PAVEMENT MARKERS - PATTERN A



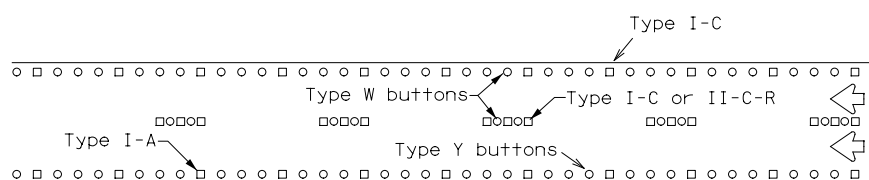
RAISED PAVEMENT MARKERS - PATTERN B

## CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



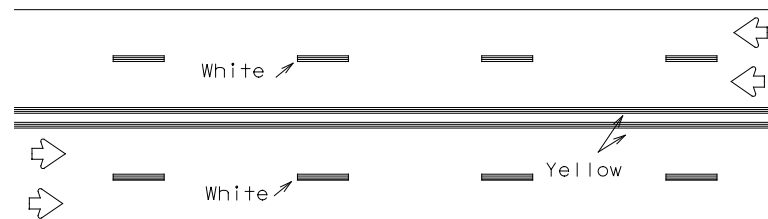
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



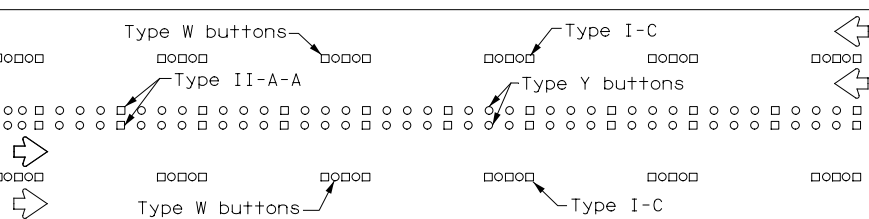
RAISED PAVEMENT MARKERS

## EDGE & LANE LINES FOR DIVIDED HIGHWAY



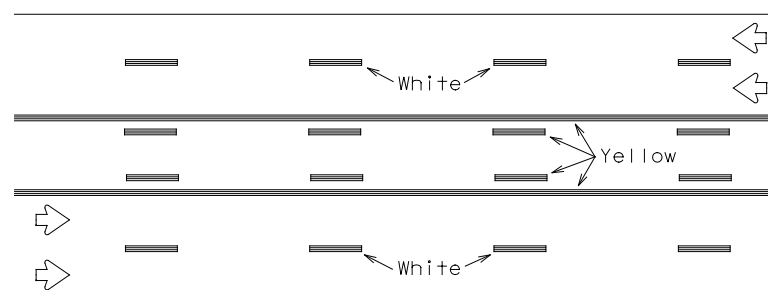
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



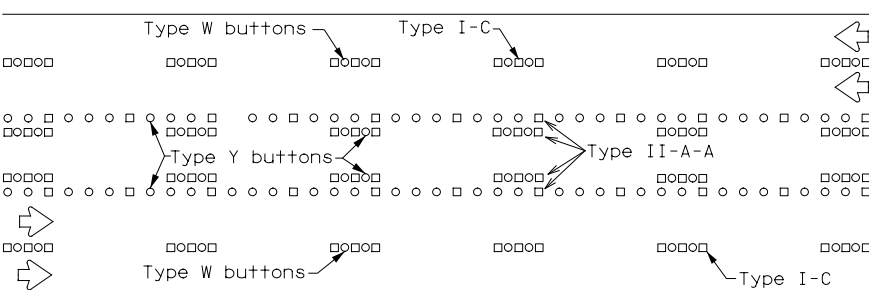
RAISED PAVEMENT MARKERS

## LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

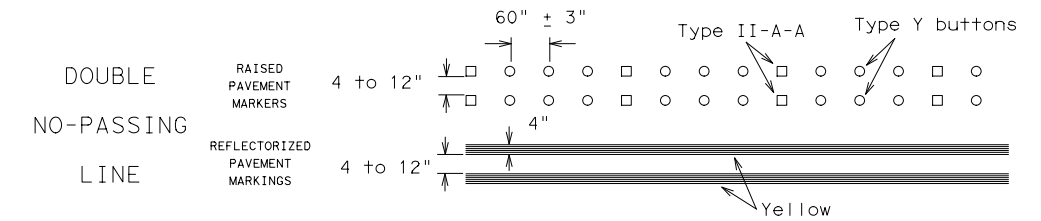
Prefabricated markings may be substituted for reflectorized pavement markings.



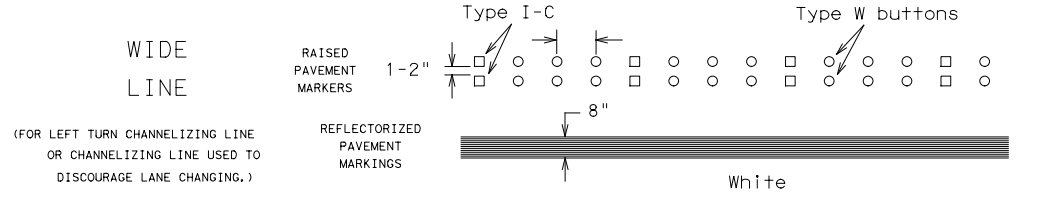
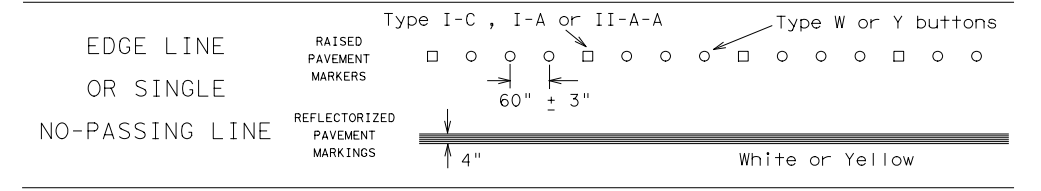
RAISED PAVEMENT MARKERS

## TWO-WAY LEFT TURN LANE

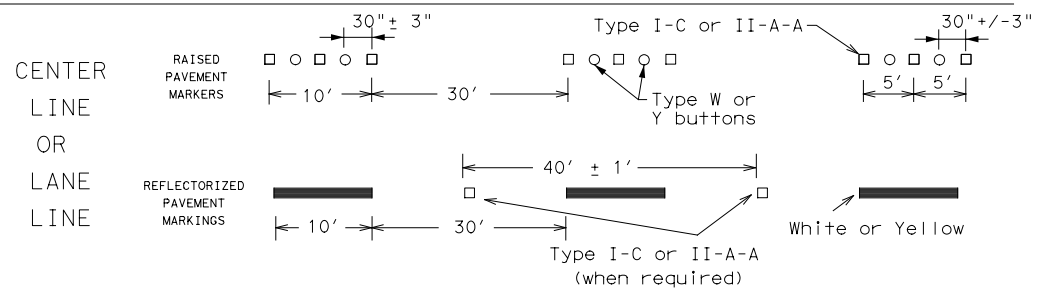
## STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



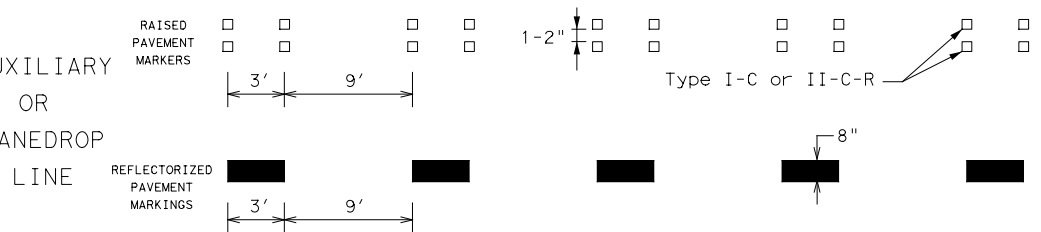
### SOLID LINES



### BROKEN LINES

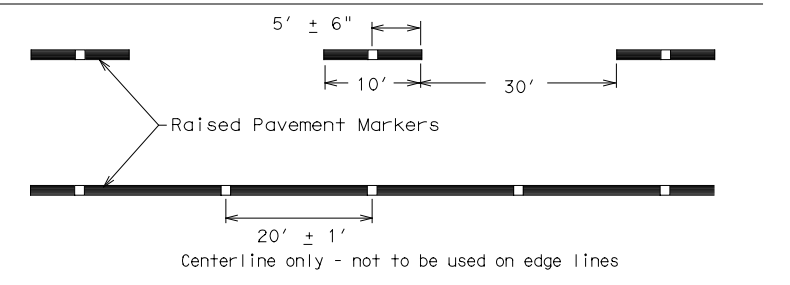


### AUXILIARY OR LANEDROP LINE



### REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



SHEET 12 OF 12



## BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

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©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0094	02	146	SH 183
1-97 9-07 5-21				
2-98 7-13	DIST	COUNTY	SHEET NO.	
11-02 8-14	FTW	TARRANT	21	

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

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**STORMWATER POLLUTION PREVENTION PLAN (SWP3):**

This SWP3 has been developed in accordance with TxDOT policy for projects disturbing less than 1 acre of soil, and not part of a larger common plan of development.

For all projects with any soil disturbing activities, TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office. If no field office is available, then this SWP3 shall be kept at the appropriate TxDOT Area Office.

This SWP3 is consistent with requirements specified in applicable stormwater plans, and the project's environmental permits, issues, and commitments (EPICs).

**1.0 SITE/PROJECT DESCRIPTION**

**1.1 PROJECT CONTROL SECTION JOB (CSJ):**

0094-02-146

**1.2 PROJECT LIMITS:**

From: Wehring Rd

To: Handley Ederville Rd

**1.3 PROJECT COORDINATES:**

BEGIN: (Lat) 32°48'33.0732", (Long) (-) 97°14'10.4604"

END: (Lat) 32°48'32.7996", (Long) (-) 97°13'16.9248"

**1.4 TOTAL PROJECT AREA (Acres):** 0.99

**1.5 TOTAL AREA TO BE DISTURBED (Acres):** 0.68

**1.6 NATURE OF CONSTRUCTION ACTIVITY:**

Landscape enhancements for medians

**1.7 MAJOR SOIL TYPES:**

Soil Type	Description
Sand Fat Clay	stiff to hard
Fat Clay	stiff to hard

**1.8 PROJECT SPECIFIC LOCATIONS (PSLs):**

PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

- PSLs determined during preconstruction meeting
- PSLs determined during construction
- No PSLs planned for construction

Type	Sheet #s

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

**1.9 CONSTRUCTION ACTIVITIES:**

(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.3.)

- Mobilization
- Install sediment and erosion controls
- Blade existing topsoil into windrows, prep ROW, clear and grub
- Remove existing pavement
- Grading operations, excavation, and embankment
- Excavate and prepare subgrade for proposed pavement widening
- Remove existing culverts, safety end treatments (SETs)
- Remove existing metal beam guard fence (MBGF), bridge rail
- Install proposed pavement per plans
- Install culverts, culvert extensions, SETs
- Install mow strip, MBGF, bridge rail
- Place flex base
- Rework slopes, grade ditches
- Blade windrowed material back across slopes
- Revegetation of unpaved areas
- Achieve site stabilization and remove sediment and erosion control measures
- Other: Demolition of existing landscape items
- Other: Construction/Modification of irrigation items
- Other: Construction of landscape items

**1.10 POTENTIAL POLLUTANTS AND SOURCES:**

- Sediment laden stormwater from stormwater conveyance over disturbed area
- Fuels, oils, and lubricants from construction vehicles, equipment, and storage
- Solvents, paints, adhesives, etc. from various construction activities
- Transported soils from offsite vehicle tracking
- Construction debris and waste from various construction activities
- Contaminated water from excavation or dewatering pump-out water
- Sanitary waste from onsite restroom facilities
- Trash from various construction activities/receptacles
- Long-term stockpiles of material and waste
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

**1.11 RECEIVING WATERS:**

Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody
Stream BFC-5A	Flows to Stream BFC-5, then Big Fossil Creek
Stream BFC-5	Flows to Big Fossil Creek

**1.12 ROLES AND RESPONSIBILITIES: TxDOT**

- Development of plans and specifications
- Perform SWP3 inspections
- Maintain SWP3 records and update to reflect daily operations
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

**1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR**

- Day To Day Operational Control
- Maintain schedule of major construction activities
- Install, maintain and modify BMPs
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

**STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)**



FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		22
STATE	STATE DIST.	COUNTY	
TEXAS	FTW	TARRANT	
CONT.	SECT.	JOB	HIGHWAY NO.
0094	02	146	SH 183

**STORMWATER POLLUTION PREVENTION PLAN (SWP3):**

**2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE**

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

**2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:**

**T / P**

- Protection of Existing Vegetation
- Vegetated Buffer Zones
- Soil Retention Blankets
- Geotextiles
- Mulching/ Hydromulching
- Soil Surface Treatments
- Temporary Seeding
- Permanent Planting, Sodding or Seeding
- Biodegradable Erosion Control Logs
- Rock Filter Dams/ Rock Check Dams
- Vertical Tracking
- Interceptor Swale
- Riprap
- Diversion Dike
- Temporary Pipe Slope Drain
- Embankment for Erosion Control
- Paved Flumes
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

**2.2 SEDIMENT CONTROL BMPs:**

**T / P**

- Biodegradable Erosion Control Logs
- Dewatering Controls
- Inlet Protection
- Rock Filter Dams/ Rock Check Dams
- Sandbag Berms
- Sediment Control Fence
- Stabilized Construction Exit
- Floating Turbidity Barrier
- Vegetated Buffer Zones
- Vegetated Filter Strips
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

**2.3 PERMANENT CONTROLS:**

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To
Protection of Existing Vegetation	367+50	415+00
Soil Retention Blankets	367+50	415+00
Mulching/Hydromulching	367+50	415+00
Soil Surface Treatments	367+50	415+00
Permanent Planting, Sodding or Seeding	367+50	415+00

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

**2.4 OFFSITE VEHICLE TRACKING CONTROLS:**

- Excess dirt/mud on road removed daily
- Haul roads dampened for dust control
- Loaded haul trucks to be covered with tarpaulin
- Stabilized construction exit
- Other: \_\_\_\_\_
- \_\_\_\_\_
- Other: \_\_\_\_\_
- \_\_\_\_\_
- Other: \_\_\_\_\_
- \_\_\_\_\_

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

**2.5 POLLUTION PREVENTION MEASURES:**

- Chemical Management
- Concrete and Materials Waste Management
- Debris and Trash Management
- Dust Control
- Sanitary Facilities
- Other: \_\_\_\_\_
- \_\_\_\_\_
- Other: \_\_\_\_\_
- \_\_\_\_\_
- Other: \_\_\_\_\_
- \_\_\_\_\_
- Other: \_\_\_\_\_
- \_\_\_\_\_

**2.6 VEGETATED BUFFER ZONES:**

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

**2.7 ALLOWABLE NON-STORMWATER DISCHARGES:**

- Fire hydrant flushings
- Irrigation drainage
- Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- Potable water sources
- Springs
- Uncontaminated groundwater
- Water used to wash vehicles or control dust
- Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

**2.8 INSPECTIONS:**

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3 .

**2.9 MAINTENANCE:**

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3.

**STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)**



FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		23
STATE	STATE DIST.	COUNTY	
TEXAS	FTW	TARRANT	
CONT.	SECT.	JOB	HIGHWAY NO.
0094	02	146	SH 183

DATE: 5/19/2023  
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**I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402**

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1. CITY OF RICHLAND HILLS

2.  No Action Required  Required Action

Action No.

1. The project disturbs less than one acre of surface area. The Contractor is responsible for the PSL as defined in the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges (2004 Edition, Section 7.19.F, Page 55). The total disturbed acreage is the combined acreage to be disturbed on the project and the Contractor's PSL. This EPIC must be updated if the disturbed area increases to one or more acres during the course of construction (refer to the following sections). It may become necessary to post a site notice and/or NOI for the project and/or PSL.

Commitment 1: Refer to the SW3P Plan Sheet, BMPs, and Detail. It will address sweeping, chemical storage, sanitary waste, and all other management practices.

**II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404**

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

- No Permit Required
- Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)
- Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)
- Individual 404 Permit Required
- Other Nationwide Permit Required: NWP# \_\_\_\_\_

No action required

**Best Management Practices:**

Erosion	Sedimentation	Post-Construction TSS
<input type="checkbox"/> Temporary Vegetation	<input type="checkbox"/> Silt Fence	<input type="checkbox"/> Vegetative Filter Strips
<input type="checkbox"/> Blankets/Matting	<input type="checkbox"/> Rock Berm	<input type="checkbox"/> Retention/Irrigation Systems
<input type="checkbox"/> Mulch	<input type="checkbox"/> Triangular Filter Dike	<input type="checkbox"/> Extended Detention Basin
<input type="checkbox"/> Sodding	<input type="checkbox"/> Sand Bag Berm	<input type="checkbox"/> Constructed Wetlands
<input type="checkbox"/> Interceptor Swale	<input type="checkbox"/> Straw Bale Dike	<input type="checkbox"/> Wet Basin
<input type="checkbox"/> Diversion Dike	<input type="checkbox"/> Brush Berms	<input type="checkbox"/> Erosion Control Compost
<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Mulch Filter Berm and Socks
<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks
<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Vegetation Lined Ditches
	<input type="checkbox"/> Stone Outlet Sediment Traps	<input type="checkbox"/> Sand Filter Systems
	<input type="checkbox"/> Sediment Basins	<input type="checkbox"/> Grassy Swales

**III. CULTURAL RESOURCES**

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

No Action Required  Required Action

**IV. VEGETATION RESOURCES**

Preserve native vegetation to the extent practical. Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

No Action Required  Required Action

**V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.**

No Action Required  Required Action

Action No.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

**LIST OF ABBREVIATIONS**

BMP: Best Management Practice	SPCC: Spill Prevention Control and Countermeasure
CGP: Construction General Permit	SW3P: Storm Water Pollution Prevention Plan
DSHS: Texas Department of State Health Services	PCN: Pre-Construction Notification
FHWA: Federal Highway Administration	PSL: Project Specific Location
MOA: Memorandum of Agreement	TCEQ: Texas Commission on Environmental Quality
MOU: Memorandum of Understanding	TPDES: Texas Pollutant Discharge Elimination System
MS4: Municipal Separate Stormwater Sewer System	TPWD: Texas Parks and Wildlife Department
MBTA: Migratory Bird Treaty Act	TxDOT: Texas Department of Transportation
NOT: Notice of Termination	T&E: Threatened and Endangered Species
NWP: Nationwide Permit	USACE: U.S. Army Corps of Engineers
NOI: Notice of Intent	USFWS: U.S. Fish and Wildlife Service

**VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES**

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

- \* Dead or distressed vegetation (not identified as normal)
- \* Trash piles, drums, canister, barrels, etc.
- \* Undesirable smells or odors
- \* Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

Yes  No

If "No", then no further action is required.

If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

Yes  No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

No Action Required  Required Action

Action No.

1.

2.

3.

**VII. OTHER ENVIRONMENTAL ISSUES**

(includes regional issues such as Edwards Aquifer District, etc.)

No Action Required  Required Action

Action No.

1.

2.

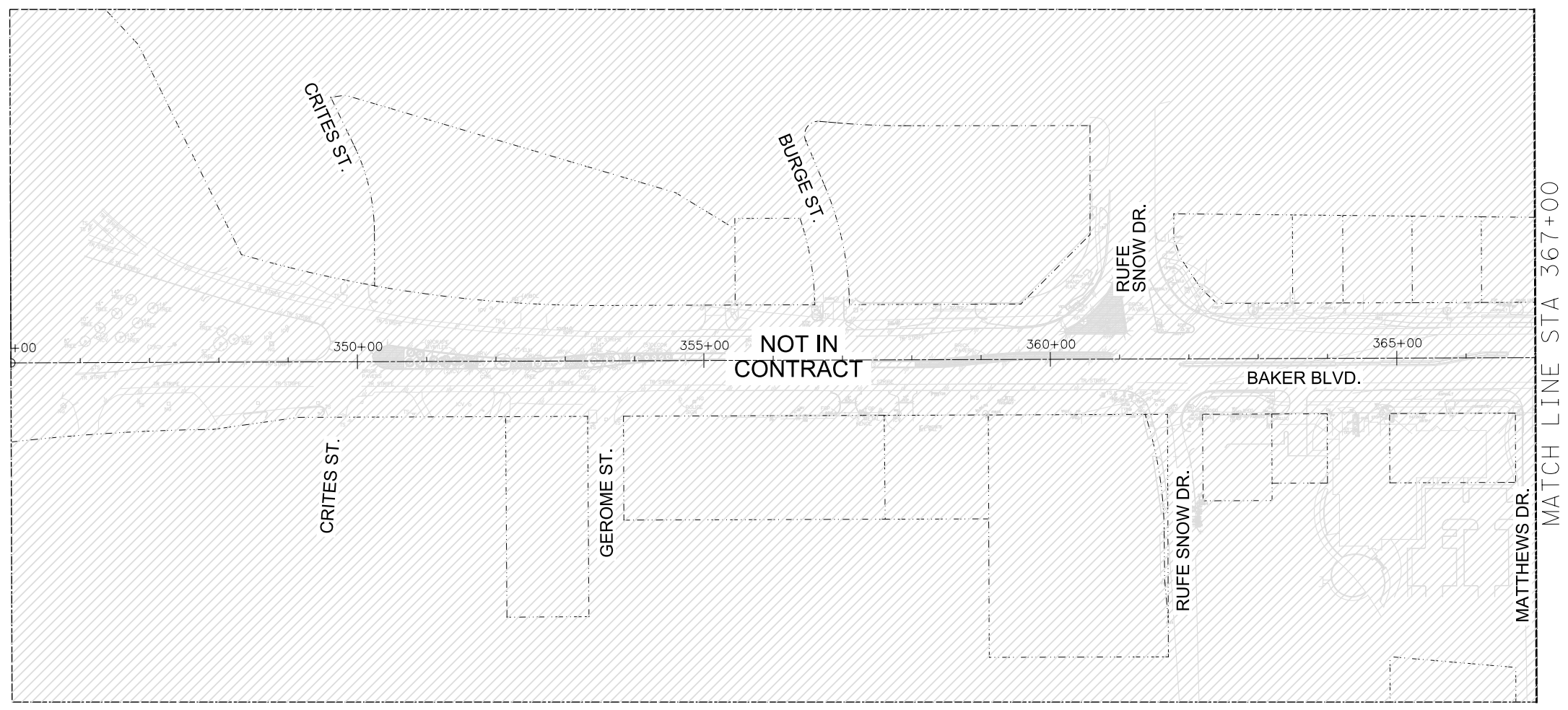
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05/19/2023

		<b>Design Division Standard</b>	
<b>ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS EPIC</b>			
FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP
©TxDOT: February 2015	CONT	SECT	JOB
12-12-2011 (DS) REVISIONS	0094	02	146
05-07-14 ADDED NOTE SECTION IV.	DIST	COUNTY	SHEET NO.
01-23-2015 SECTION I CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	FTW	TARRANT	24

- LEGEND**
- LIMITS OF CONSTRUCTION
  - o — EROSION CONTROL LOG
  - ↗ FLOW DIRECTION
  - LP LOW POINT
  - HP HIGH POINT



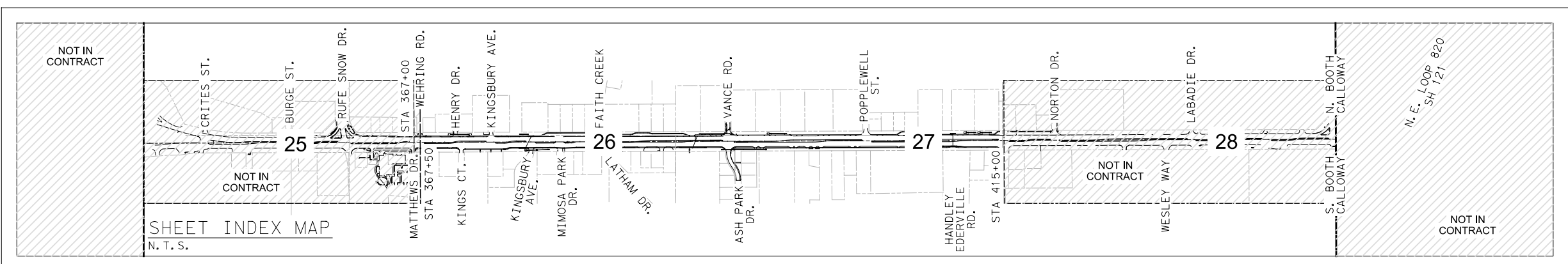
STA 345+00 - STA 367+00  
1" = 100'-0"



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05/19/2023

**EROSION CONTROL PLAN**  
BEGIN PROJECT TO STA 367+00



FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	25	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183

FTW  
04/28/2023

11/15/2023 10:58 AM  
D:\Projects\183\183\_02\183\_02\_02.dwg  
11/15/2023 10:58 AM

11/15/2023 10:58 AM  
D:\Projects\183\183\_02\183\_02\_02.dwg  
11/15/2023 10:58 AM

11/15/2023

11/15/2023

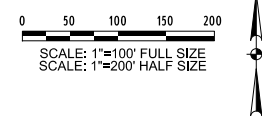
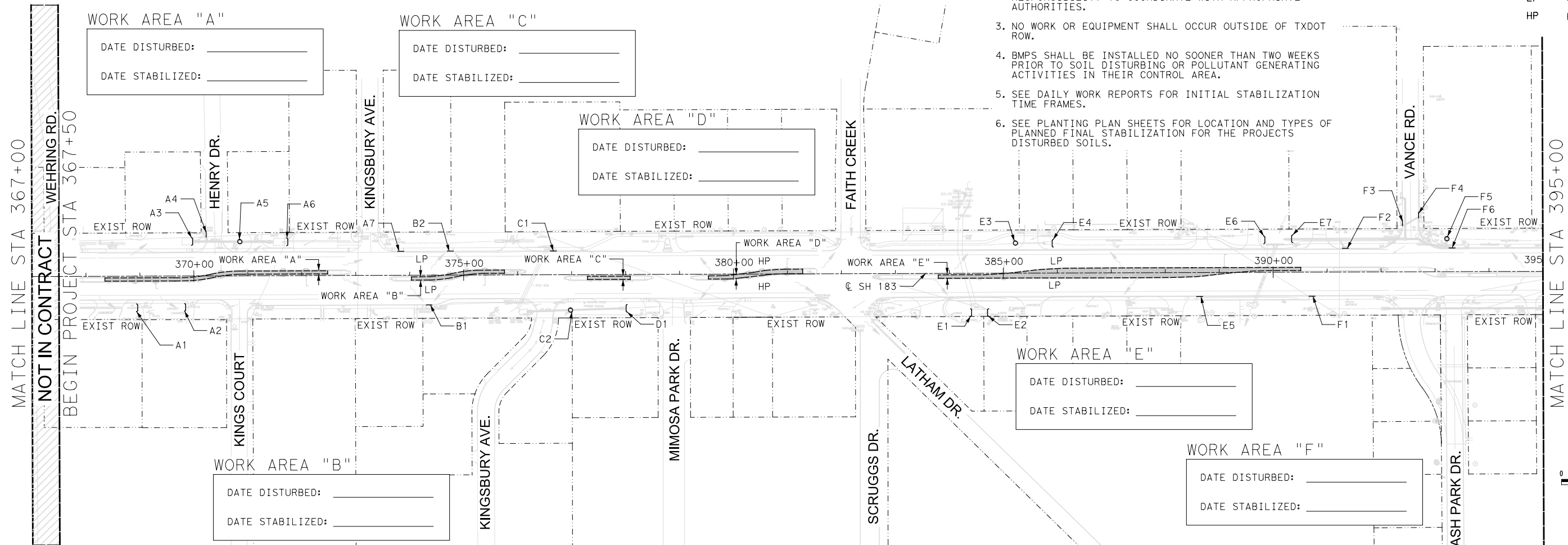
ESTIMATE OF EROSION CONTROL QUANTITIES - WORK AREAS A, B, C, D, E, & F			
ITEM	DESCRIPTION	UNIT	QUANTITY
506-6040	BIODEG EROSN CONTROL LOGS (INSTR) (8")	LF	398
506-6043	BIODEG EROSN CONTROL LOGS (REMOVE)	LF	398

### EROSION CONTROL GENERAL NOTES

1. THE ENTIRE LIMITS OF IMPROVEMENT WERE NOT SURVEYED. ALL LINEWORK IS APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
2. ALL UTILITIES SHOWN ON PLANS ARE APPROXIMATE IN NATURE AND DO NOT RELIEVE THE CONTRACTOR FROM ANY RESPONSIBILITY TO COORDINATE WITH APPROPRIATE AUTHORITIES.
3. NO WORK OR EQUIPMENT SHALL OCCUR OUTSIDE OF TXDOT ROW.
4. BMPs SHALL BE INSTALLED NO SOONER THAN TWO WEEKS PRIOR TO SOIL DISTURBING OR POLLUTANT GENERATING ACTIVITIES IN THEIR CONTROL AREA.
5. SEE DAILY WORK REPORTS FOR INITIAL STABILIZATION TIME FRAMES.
6. SEE PLANTING PLAN SHEETS FOR LOCATION AND TYPES OF PLANNED FINAL STABILIZATION FOR THE PROJECTS DISTURBED SOILS.

### LEGEND

- LIMITS OF CONSTRUCTION
- o EROSION CONTROL LOG
- FLOW DIRECTION
- LP LOW POINT
- HP HIGH POINT



STA 367+00 - STA 395+00

1" = 100'-0"

WORK AREA "A"				
INLET ID	TYPE	LF	DATE INSTALLED	DATE REMOVED
A1	D	17		
A2	D	17		
A3	D	17		
A4	CI	11		
A5	DI	27		
A6	D	17		
A7	CI	11		

WORK AREA "B"				
INLET ID	TYPE	LF	DATE INSTALLED	DATE REMOVED
B1	CI	10		
B2	CI	11		

WORK AREA "C"				
INLET ID	TYPE	LF	DATE INSTALLED	DATE REMOVED
C1	CI	11		
C2	DI	27		

WORK AREA "D"				
INLET ID	TYPE	LF	DATE INSTALLED	DATE REMOVED
D1	D	17		

WORK AREA "E"				
INLET ID	TYPE	LF	DATE INSTALLED	DATE REMOVED
E1	D	17		
E2	D	17		
E3	DI	27		
E4	D	17		
E5	CI	11		
E6	D	17		
E7	D	17		

WORK AREA "F"				
INLET ID	TYPE	LF	DATE INSTALLED	DATE REMOVED
F1	CI	11		
F2	CI	11		
F3	CI	11		
F4	CI	11		
F5	DI	27		
F6	CI	11		

EROSION CONTROL LOG TYPE - SEE EC(9)-16  
 CI: CONTROL LOG AT CURB INLET  
 DI: CONTROL LOG AT DROP INLET  
 D: CONTROL LOG DAM



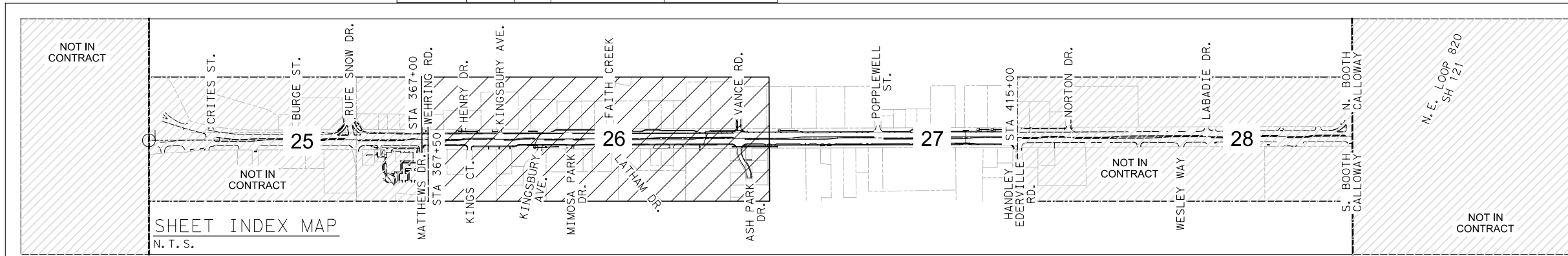
05/19/2023



## EROSION CONTROL PLAN

STA 367+00 TO STA 395+00

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	26	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183



SHEET INDEX MAP  
N. T. S.

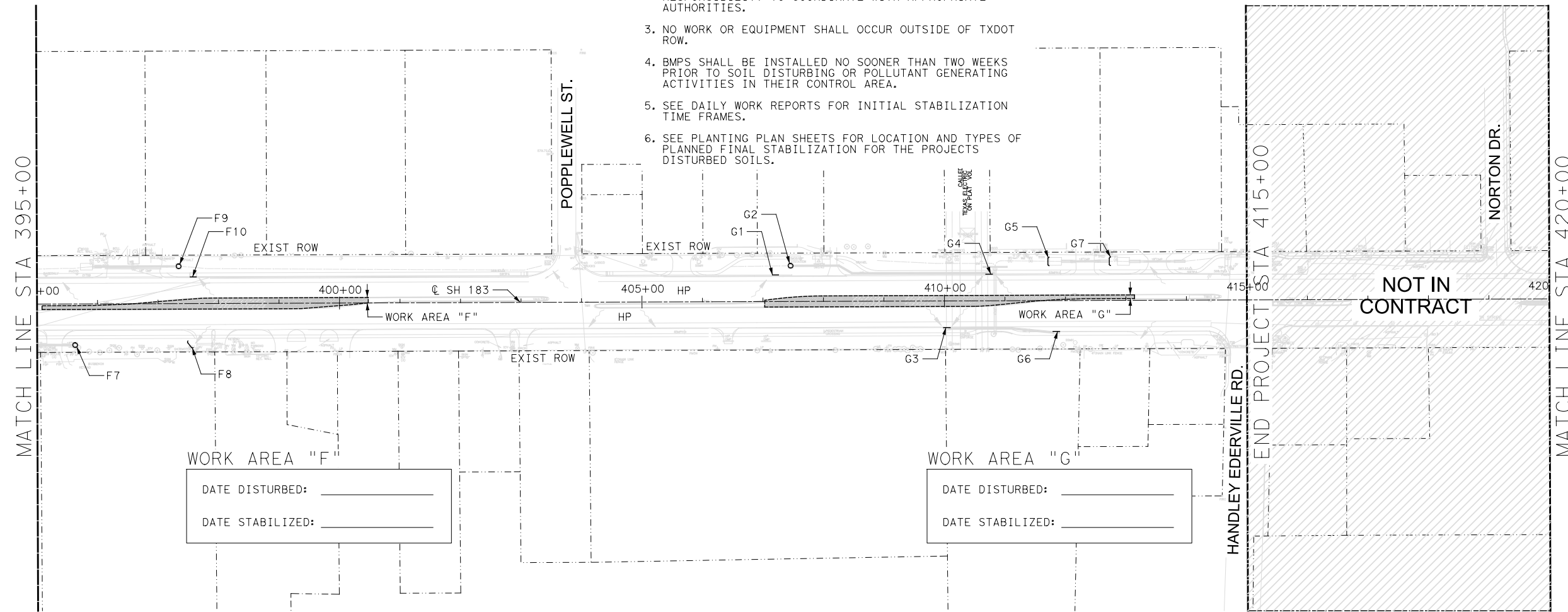
ESTIMATE OF EROSION CONTROL QUANTITIES - WORK AREA F & G			
ITEM	DESCRIPTION	UNIT	QUANTITY
506-6040	BIODEG EROSN CONTROL LOGS (INSL) (8")	LF	185
506-6043	BIODEG EROSN CONTROL LOGS (REMOVE)	LF	185

### EROSION CONTROL GENERAL NOTES

1. THE ENTIRE LIMITS OF IMPROVEMENT WERE NOT SURVEYED. ALL LINEWORK IS APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
2. ALL UTILITIES SHOWN ON PLANS ARE APPROXIMATE IN NATURE AND DO NOT RELIEVE THE CONTRACTOR FROM ANY RESPONSIBILITY TO COORDINATE WITH APPROPRIATE AUTHORITIES.
3. NO WORK OR EQUIPMENT SHALL OCCUR OUTSIDE OF TXDOT ROW.
4. BMPs SHALL BE INSTALLED NO SOONER THAN TWO WEEKS PRIOR TO SOIL DISTURBING OR POLLUTANT GENERATING ACTIVITIES IN THEIR CONTROL AREA.
5. SEE DAILY WORK REPORTS FOR INITIAL STABILIZATION TIME FRAMES.
6. SEE PLANTING PLAN SHEETS FOR LOCATION AND TYPES OF PLANNED FINAL STABILIZATION FOR THE PROJECTS DISTURBED SOILS.

### LEGEND

- LIMITS OF CONSTRUCTION
- EROSION CONTROL LOG
- FLOW DIRECTION
- LP LOW POINT
- HP HIGH POINT



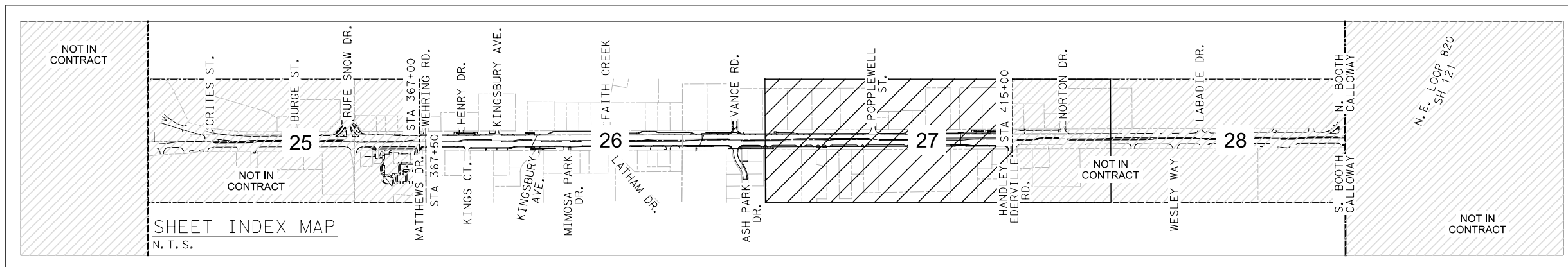
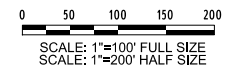
STA 395+00 - STA 420+00

1" = 100'-0"

WORK AREA "F"				
INLET ID	TYPE	LF	DATE INSTALLED	DATE REMOVED
F7	DI	27		
F8	D	17		
F9	DI	27		
F10	CI	10		

WORK AREA "G"				
INLET ID	TYPE	LF	DATE INSTALLED	DATE REMOVED
G1	CI	10		
G2	DI	27		
G3	CI	11		
G4	CI	11		
G5	D	17		
G6	CI	11		
G7	D	17		

EROSION CONTROL LOG TYPE - SEE EC(9)-16  
 CI: CONTROL LOG AT CURB INLET  
 DI: CONTROL LOG AT DROP INLET  
 D: CONTROL LOG DAM

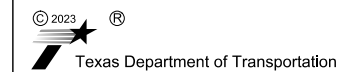


SHEET INDEX MAP  
N. T. S.



*Connor R. Guerrero*  
 TBPELS ENGINEERING FIRM #312

05/19/2023



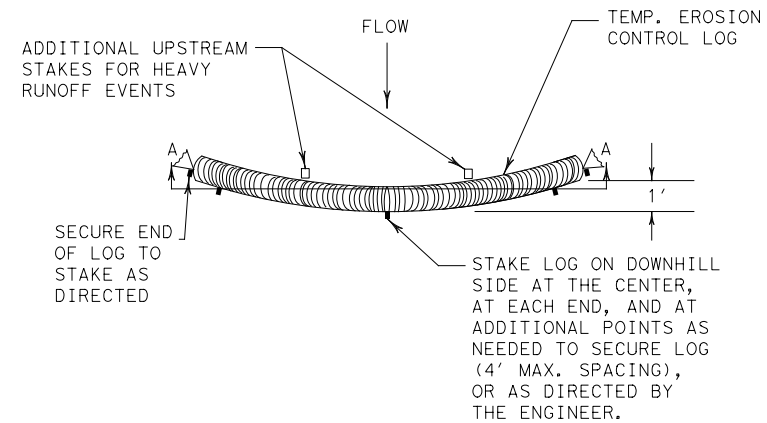
## EROSION CONTROL PLAN STA 395+00 TO STA 420+00

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	27	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183

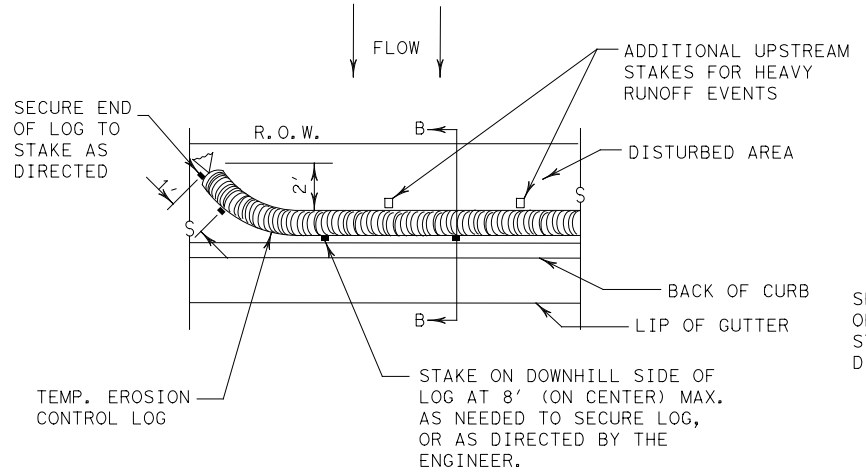


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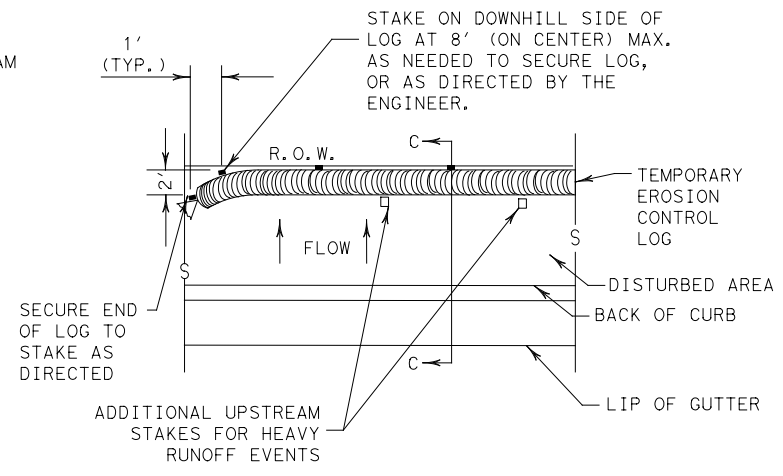
DATE: 5/19/2023  
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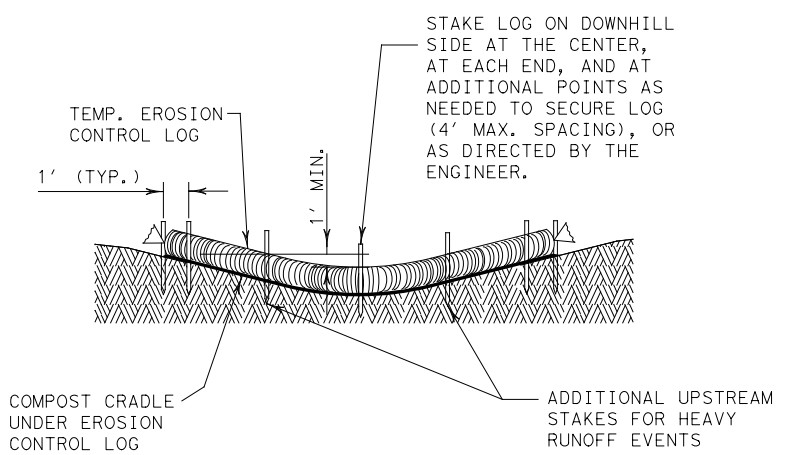
PLAN VIEW



PLAN VIEW



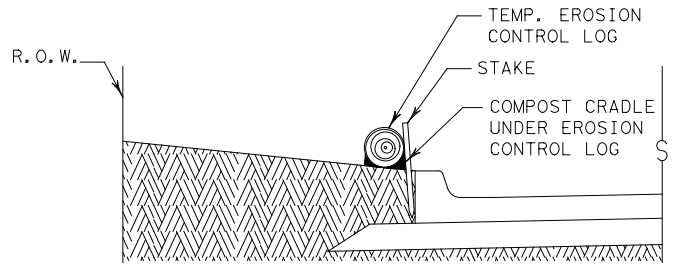
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

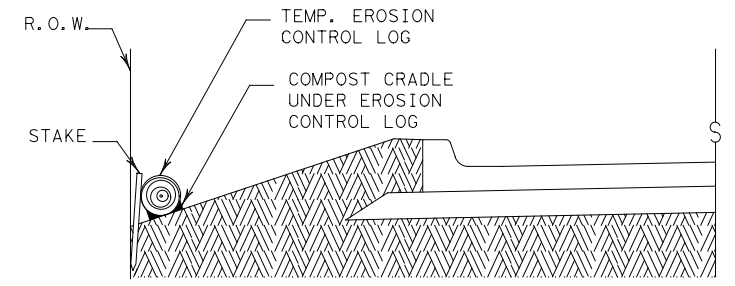
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

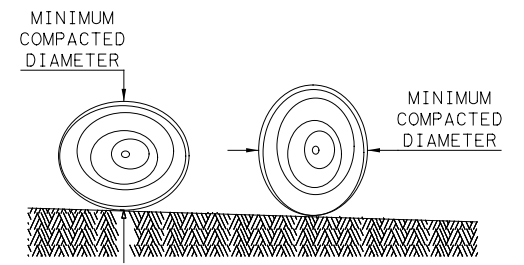
CL-BOC



SECTION C-C

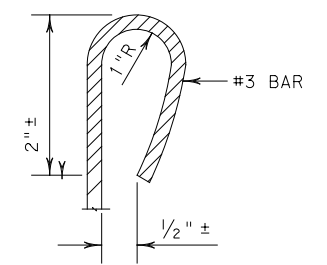
EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

- LEGEND
- CL-D EROSION CONTROL LOG DAM
  - CL-BOC EROSION CONTROL LOG AT BACK OF CURB
  - CL-ROW EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
  - CL-SST EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
  - CL-SSL EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
  - CL-DI EROSION CONTROL LOG AT DROP INLET
  - CL-CI EROSION CONTROL LOG AT CURB INLET
  - CL-GI EROSION CONTROL LOG AT CURB & GRATE INLET



REBAR STAKE DETAIL

**SEDIMENT BASIN & TRAP USAGE GUIDELINES**

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

**Log Traps:** The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

- GENERAL NOTES:**
1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
  2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
  3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
  4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
  5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
  6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
  7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
  8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
  9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
  10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

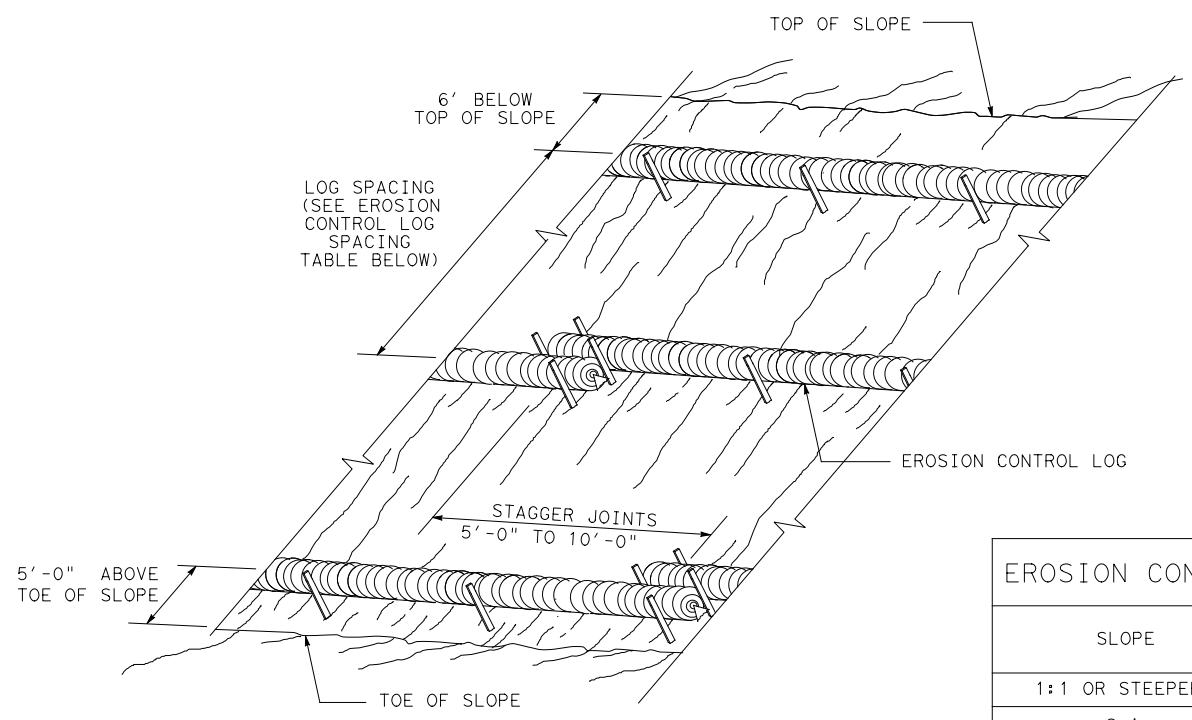
SHEET 1 OF 3

		<b>Design Division Standard</b>	
<b>TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES</b>			
<b>EROSION CONTROL LOG</b>			
<b>EC (9) - 16</b>			
FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT: 0094	SECT: 02	JOB: 146
REVISIONS		HIGHWAY: SH 183	
		DIST: FTW	COUNTY: TARRANT
		SHEET NO.: 29	



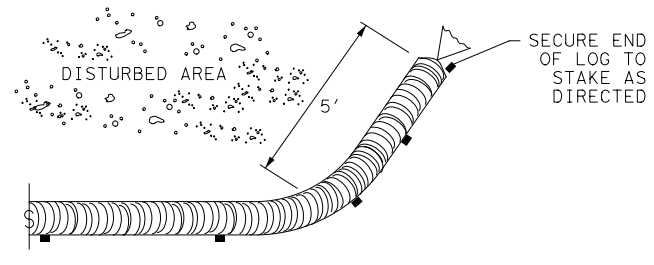
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DATE: 5/19/2023  
 FILE: I:\31000s\31515\W032 FY 23 Baker Green Ribbon\CADD\Sheets\FTW\ec916.dgn



EROSION CONTROL LOGS ON SLOPES  
 STAKE AND TRENCHING ANCHORING

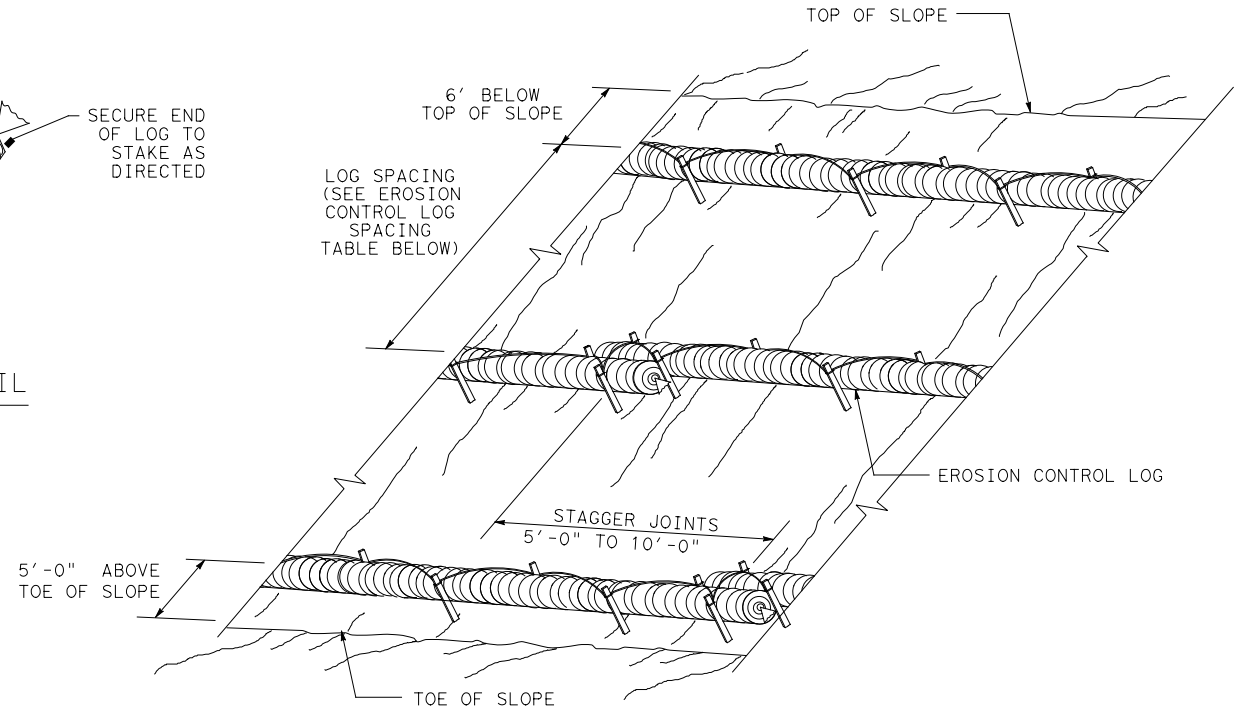
CL-SST



END SECTION RAP DETAIL

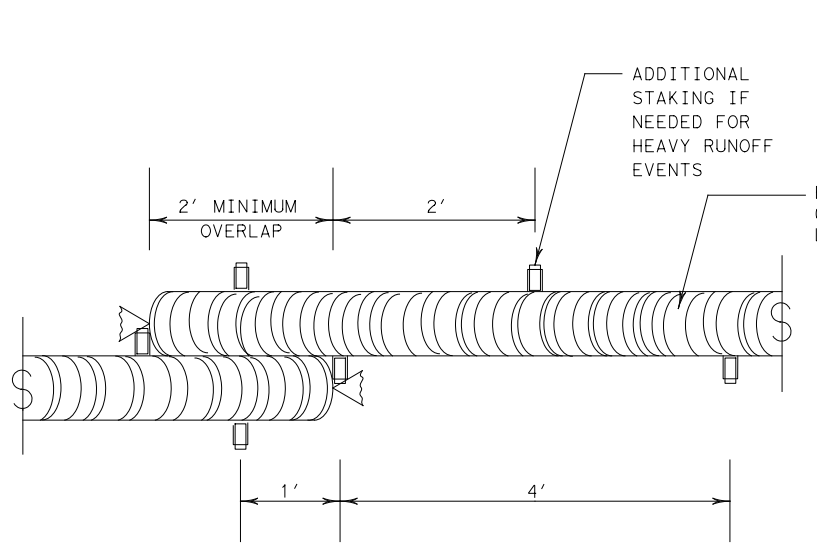
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

\* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:  
 SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;  
 HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



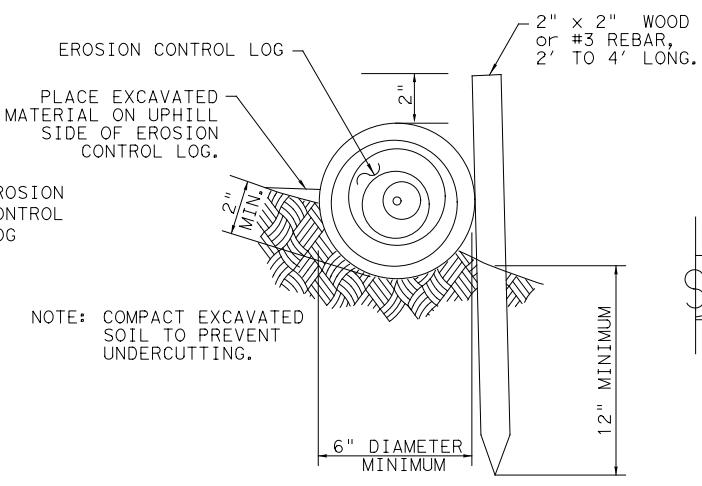
EROSION CONTROL LOGS ON SLOPES  
 STAKE AND LASHING ANCHORING

CL-SSL



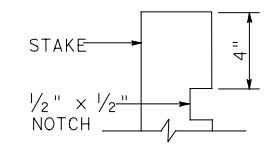
STAKE AND TRENCHING ANCHORING DETAIL

CL-SST



STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

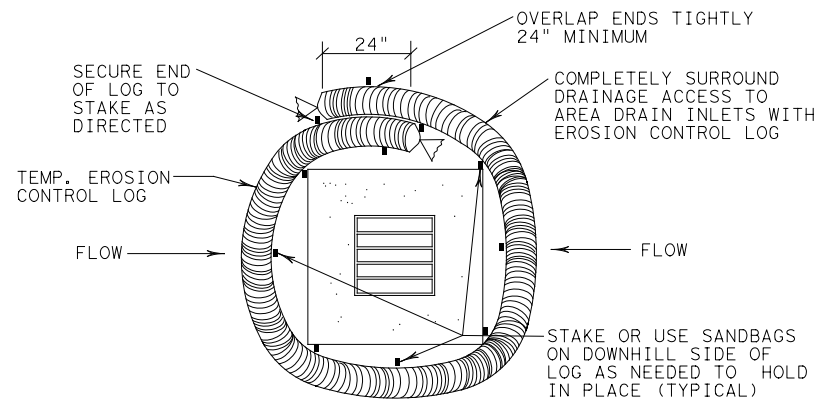
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"

SHEET 2 OF 3

		<b>Design Division Standard</b>	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16			
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT SECT	JOB	HIGHWAY
REVISIONS	0094 02	146	SH 183
	DIST	COUNTY	SHEET NO.
	FTW	TARRANT	30

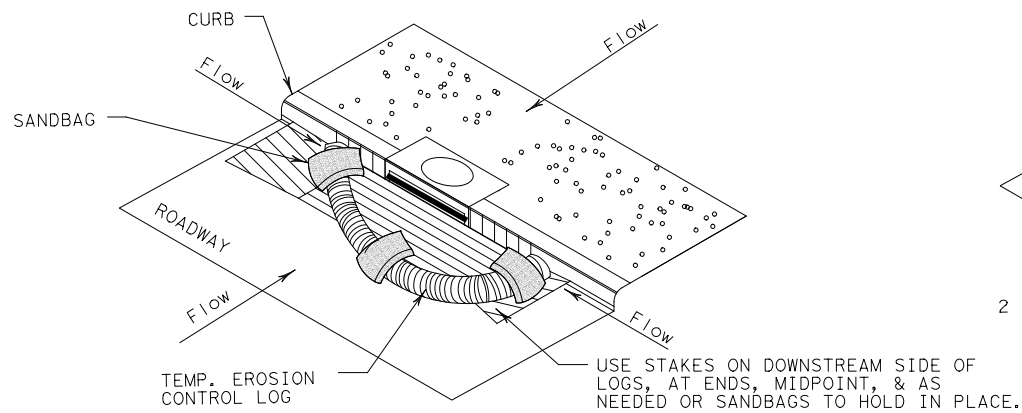
DISCLAIMER: This standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 5/19/2023  
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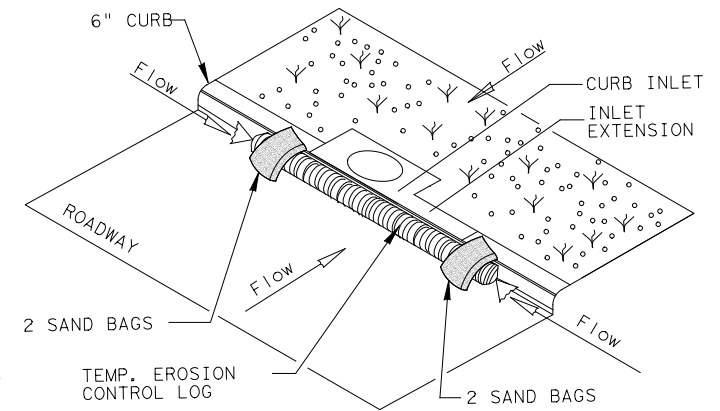
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

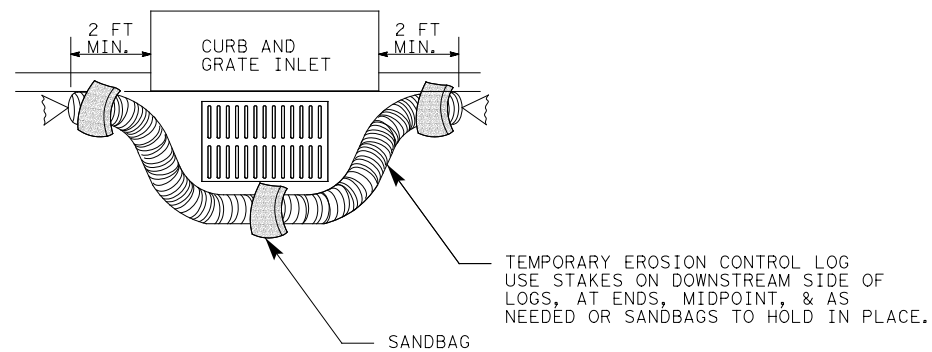
CL-CI



EROSION CONTROL LOG AT CURB INLET

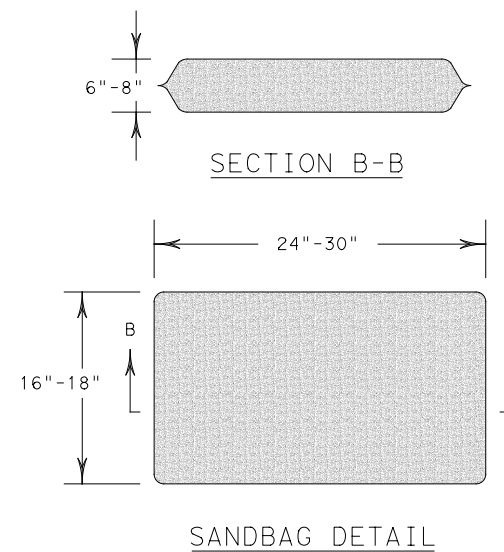
CL-CI

NOTE:  
 EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI

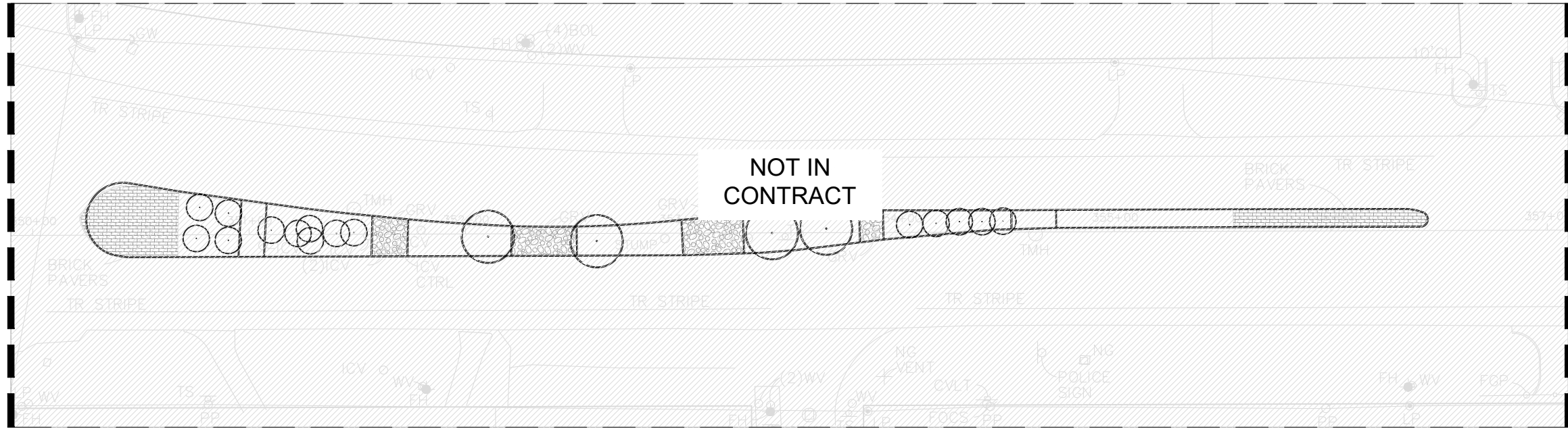


SHEET 3 OF 3

		<b>Design Division Standard</b>	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16			
FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT	SECT	JOB
REVISIONS	0094	02	146
	DIST	COUNTY	SHEET NO.
	FTW	TARRANT	31

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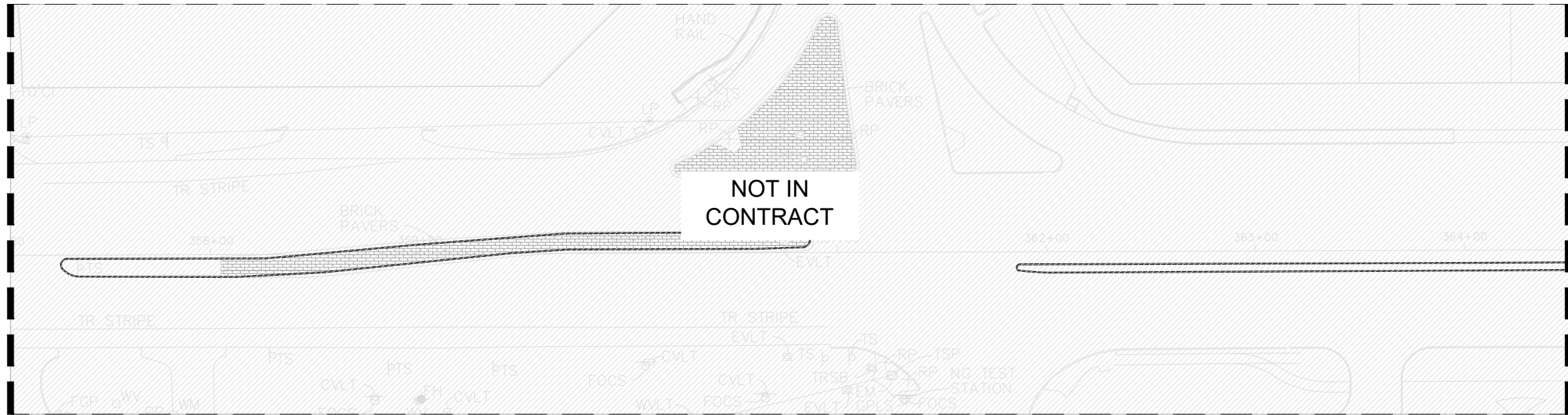
MATCHLINE STA 350+00



MATCHLINE STA 357+00

STA 350+00 – STA 357+00  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'

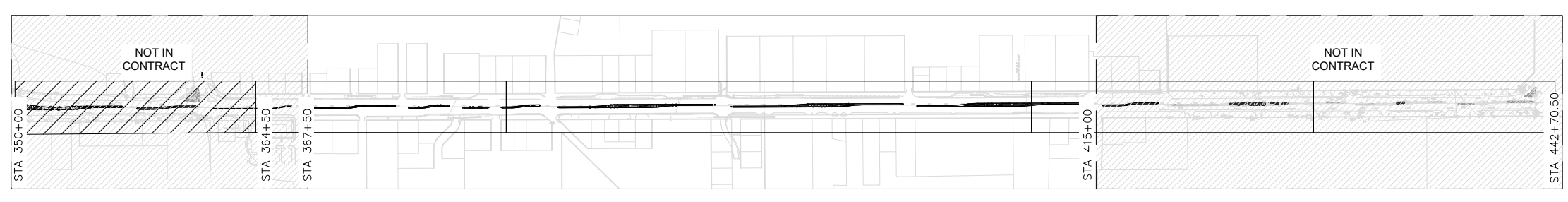
MATCHLINE STA 357+00



MATCHLINE STA 364+50

STA 357+00 – STA 364+50  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'

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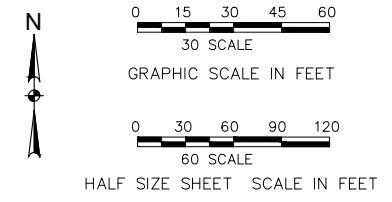
SHEET INDEX MAP  
 N.T.S.

NOTE:  
 1. ALL LANDSCAPE PLANTINGS AND MULCH SHOWN TO BE REMOVED SHALL BE DISPOSED OF OFF-SITE; EXISTING IRRIGATION SHALL BE CAREFULLY DISCONNECTED, TRACKED AND BE MADE READY FOR RE-USE AFTER REQUIRED FILL IS ADDED TO MEDIANS AND GRADING IS ACCEPTED BY THE OWNER. IRRIGATION REMOVAL, DISCONNECTION AND TRACKING SHALL BE INCIDENTAL TO ITEM 100-6002 "PREPARING ROW" MAINLINE IRRIGATION LINE TO REMAIN IN PLACE.  
 2. PAYMENT FOR LANDSCAPE PLANTING REMOVAL SHALL BE PAID FOR UNDER ITEM 100-6002, PREPARING ROW.  
 3. CONTRACTOR TO REMOVE ALL WEEDS AND DEBRIS FROM EXISTING GRAVEL BEDS. WEED AND DEBRIS REMOVAL SHALL BE PAID FOR UNDER ITEM 100-6002, PREPARING ROW.

- KEY LEGEND**
- DEMO TREE (DESERT WILLOW)
  - DEMO GROUNDCOVER AND DECOMPOSED GRAVEL (MOW STRIPS ARE TO BE LEFT ALONE)
  - TREE TO REMAIN (CRAPEMYRTLE & ELM TREES)

- GENERAL NOTES**
1. THE ENTIRE LIMITS OF IMPROVEMENTS WERE SURVEYED. ALL LINWORK IS APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO CONTRACTORS SUBMITTING THEIR BID.
  2. ALL UTILITIES SHOWN ON PLANS ARE APPROPRIATE AUTHORITIES.
  3. EXISTING MOW STRIPS TO REMAIN.
  4. EXISTING JUNIPER PLANTING, EXISTING CRAPEMYRTLE AND ELM TREES TO REMAIN.
  5. ALL GROUNDCOVER PLANTING MATERIAL, DESERT WILLOW TREES, AND DECOMPOSED GRANITE ARE TO BE REMOVED.

06/13/2023



CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



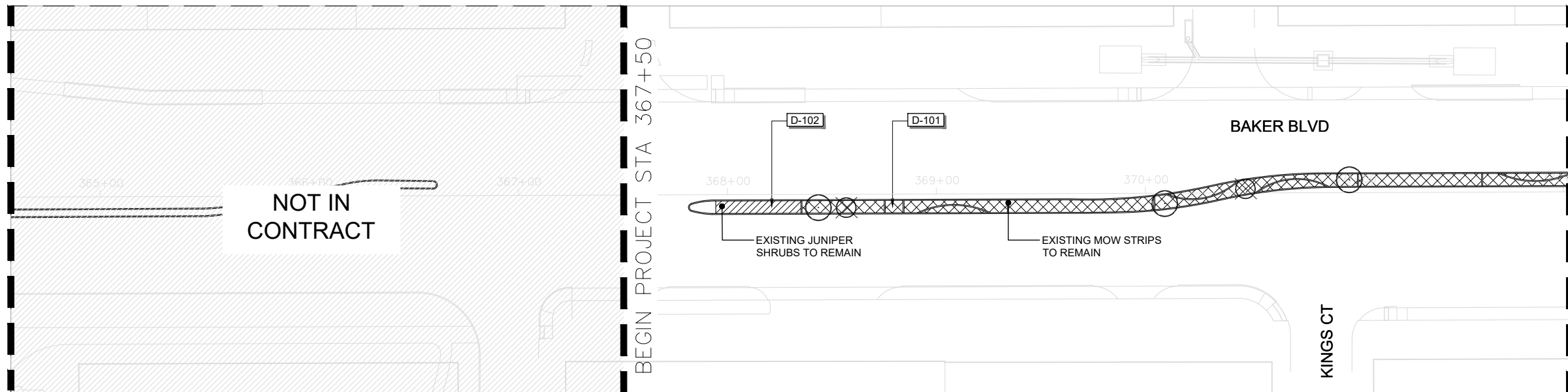
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 Texas Department of Transportation

DEMOLITION PLAN  
 STA 350+00 – STA 364+50

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	32	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183

###

MATCH LINE STA 364+50



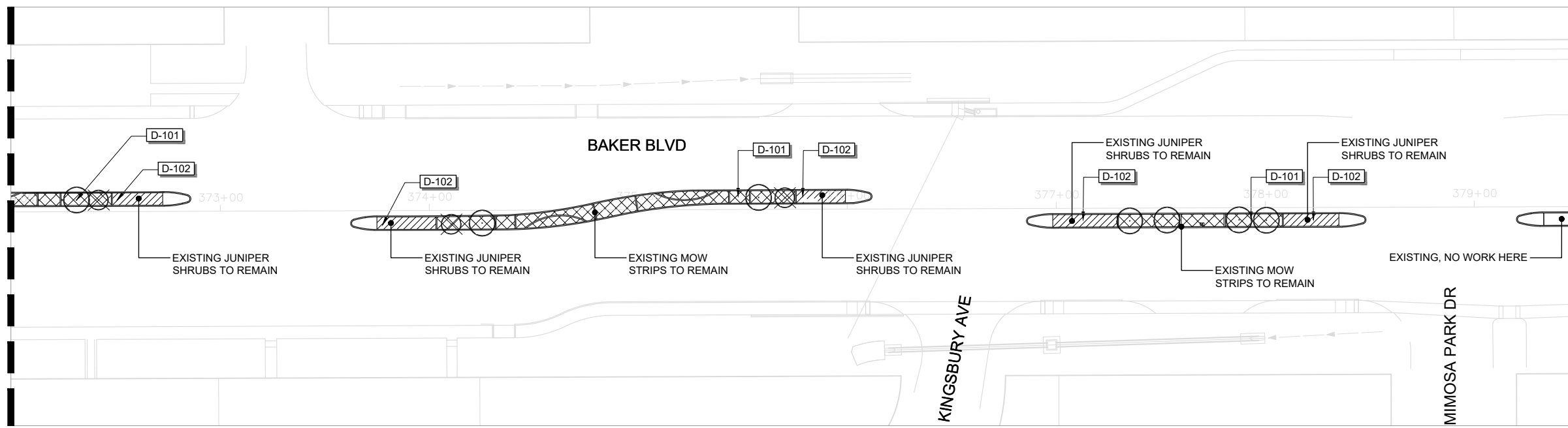
NOTE:

1. ALL LANDSCAPE PLANTINGS AND MULCH SHOWN TO BE REMOVED SHALL BE DISPOSED OF OFF-SITE; EXISTING IRRIGATION SHALL BE CAREFULLY DISCONNECTED, TRACKED AND BE MADE READY FOR RE-USE AFTER REQUIRED FILL IS ADDED TO MEDIANS AND GRADING IS ACCEPTED BY THE OWNER. IRRIGATION REMOVAL, DISCONNECTION AND TRACKING SHALL BE INCIDENTAL TO ITEM 100-6002 "PREPARING ROW". MAINLINE IRRIGATION LINE TO REMAIN IN PLACE.
2. PAYMENT FOR LANDSCAPE PLANTING REMOVAL SHALL BE PAID FOR UNDER ITEM 100-6002, PREPARING ROW.
3. CONTRACTOR TO REMOVE ALL WEEDS AND DEBRIS FROM EXISTING GRAVEL BEDS. WEED AND DEBRIS REMOVAL SHALL BE PAID FOR UNDER ITEM 100-6002, PREPARING ROW.

- KEY LEGEND**
- DEMO TREE (DESERT WILLOW)
  - DEMO GROUNDCOVER AND DECOMPOSED GRAVEL.(MOW STRIPS ARE TO BE LEFT ALONE)
  - TREE TO REMAIN (CRAPEMYRTLE & ELM TREES)
  - REMOVE ALL DECOMPOSED GRAVEL. JUNIPER TO BE LEFT IN PLACE.

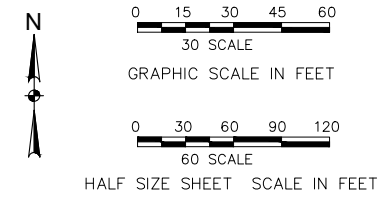
STA 364+50 - STA 372+00  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'

MATCH LINE STA 372+00



**REFERENCE NOTES SCHEDULE 31**

SYMBOL	DEMOLITION DESCRIPTION	QTY
D-101	REMOVE ALL GROUNDCOVER, DECOMPOSED GRAVEL, AND DESERT WILLOW TREES IN HATCHED AREAS. EXISTING CRAPEMYRTLE TREES, ELM TREES, AND MOWSTRIPS ARE TO BE LEFT ALONE.	3,958 sf
D-102	REMOVE ALL DECOMPOSED GRAVEL. ALL JUNIPERS TO REMAIN IN PLACE OR BE RE-DAMAGED DURING GRAVEL REMOVAL.	1,029 sf



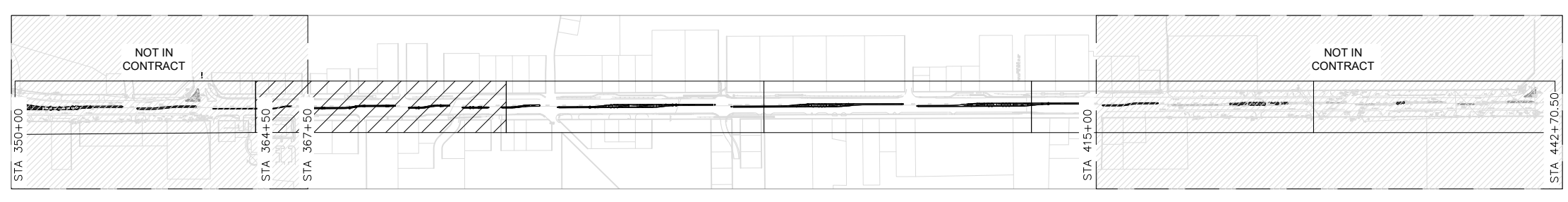
CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



STA 372+00 - STA 379+50  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'

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SHEET INDEX MAP  
 N.T.S.



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DEMOLITION PLAN  
 STA 364+50 - STA 379+50

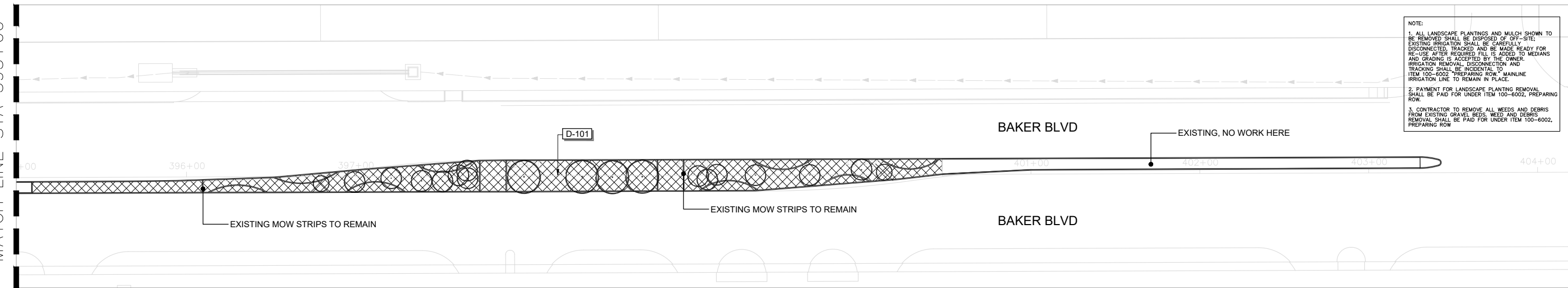
FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	33	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183

FILE - L:\PROJECTS\2023\TXDOT\146\146-02\146-02-02\146-02-02-01.dwg  
 DATE - 06/13/2023 10:07 AM  
 USER - jhughes



MATCH LINE STA 395+00

MATCH LINE STA 404+25



NOTE:

1. ALL LANDSCAPE PLANTINGS AND MULCH SHOWN TO BE REMOVED SHALL BE DISPOSED OF OFF-SITE. EXISTING IRRIGATION SHALL BE CAREFULLY DISCONNECTED, TRACKED AND BE MADE READY FOR RE-USE AFTER REQUIRED FILL IS ADDED TO MEDIANS AND GRADING IS ACCEPTED BY THE OWNER. IRRIGATION REMOVAL, DISCONNECTION AND TRACKING SHALL BE INCIDENTAL TO ITEM 100-6002 "PREPARING ROW" MAINLINE IRRIGATION LINE TO REMAIN IN PLACE.
2. PAYMENT FOR LANDSCAPE PLANTING REMOVAL SHALL BE PAID FOR UNDER ITEM 100-6002, PREPARING ROW.
3. CONTRACTOR TO REMOVE ALL WEEDS AND DEBRIS FROM EXISTING GRAVEL BEDS. WEED AND DEBRIS REMOVAL SHALL BE PAID FOR UNDER ITEM 100-6002, PREPARING ROW.

STA 395+00 - STA 404+25

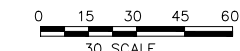
Full Size: 1" = 30'  
Half Size: 1" = 60'

### KEY LEGEND

- DEMO TREE (DESERT WILLOW)
- DEMO GROUNDCOVER AND DECOMPOSED GRAVEL.(MOW STRIPS ARE TO BE LEFT ALONE)
- TREE TO REMAIN (CRAPEMYRTLE & ELM TREES)

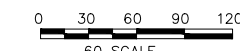
### REFERENCE NOTES SCHEDULE 33

SYMBOL	DESCRIPTION	QTY
D-101	DEMOLITION OF GROUNDCOVER, DECOMPOSED GRAVEL AND DESERT WILLOW TREES IN HATCHED AREAS. EXISTING CRAPEMYRTLE TREES, ELM TREES, AND MOWSTRIPS ARE TO BE LEFT ALONE.	14,551 sf



30 SCALE

GRAPHIC SCALE IN FEET



60 SCALE

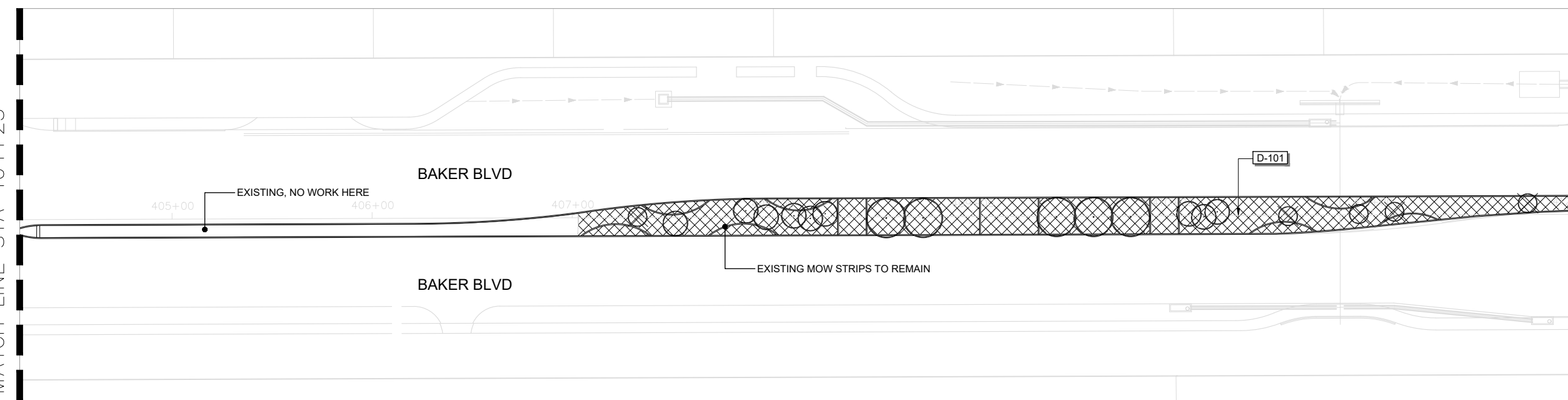
HALF SIZE SHEET SCALE IN FEET

CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



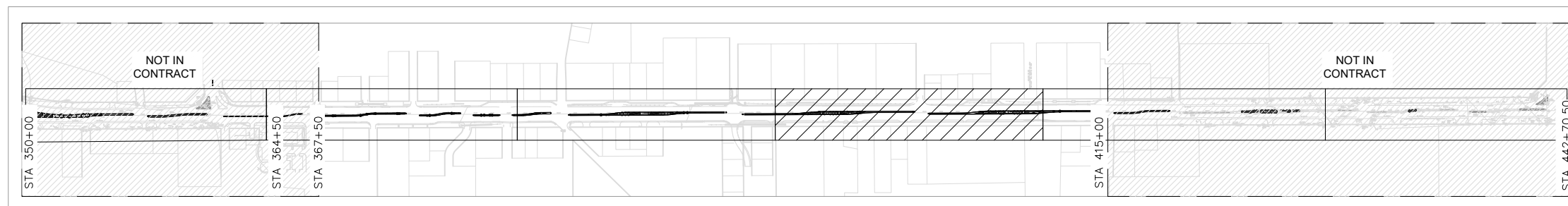
MATCH LINE STA 404+25

MATCH LINE STA 412+00



STA 404+25 - STA 412+00

Full Size: 1" = 30'  
Half Size: 1" = 60'



SHEET INDEX MAP  
N.T.S.



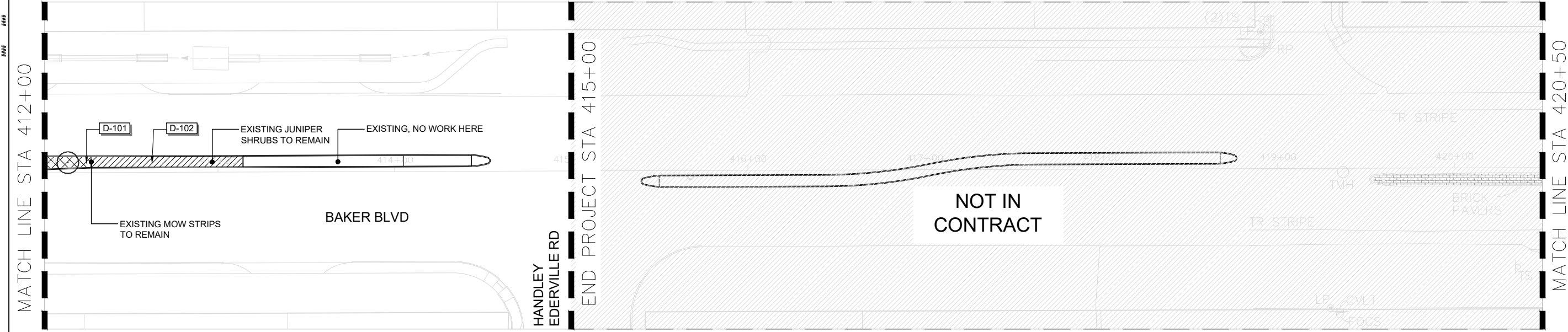
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### DEMOLITION PLAN

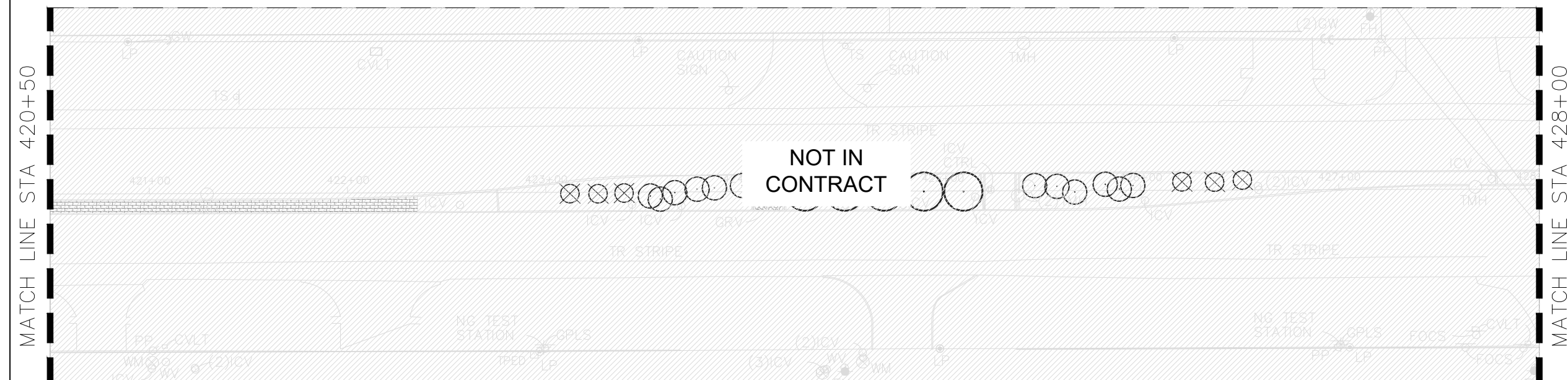
STA 395+00 - STA 412+00

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	35	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183

NOTE:  
 1. ALL LANDSCAPE PLANTINGS AND MULCH SHOWN TO BE REMOVED SHALL BE DISPOSED OF OFF-SITE; EXISTING IRRIGATION SHALL BE CAREFULLY DISCONNECTED, TRACKED AND BE MADE READY FOR RE-USE AFTER REQUIRED FILL IS ADDED TO MEDIANS. IRRIGATION REMOVAL, DISCONNECTION AND TRACKING SHALL BE INCIDENTAL TO ITEM 100-6002 "PREPARING ROW." MAINLINE IRRIGATION LINE TO REMAIN IN PLACE.  
 2. PAYMENT FOR LANDSCAPE PLANTING REMOVAL SHALL BE PAID FOR UNDER ITEM 100-6002, PREPARING ROW.  
 3. CONTRACTOR TO REMOVE ALL WEEDS AND DEBRIS FROM EXISTING GRAVEL BEDS. WEED AND DEBRIS REMOVAL SHALL BE PAID FOR UNDER ITEM 100-6002, PREPARING ROW.



STA 412+00 - STA 420+50  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'

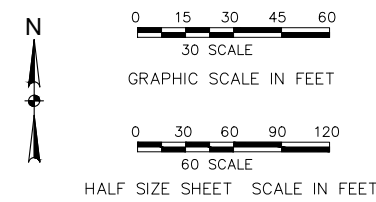


STA 420+50 - STA 428+00  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'

**KEY LEGEND**

- DEMO TREE (DESERT WILLOW)
- DEMO GROUNDCOVER AND DECOMPOSED GRAVEL. (MOW STRIPS ARE TO BE LEFT ALONE)
- TREE TO REMAIN (CRAPEMYRTLE & JUNIPERS)
- REMOVE ALL DECOMPOSED GRAVEL. JUNIPER TO BE LEFT IN PLACE.

06/13/2023



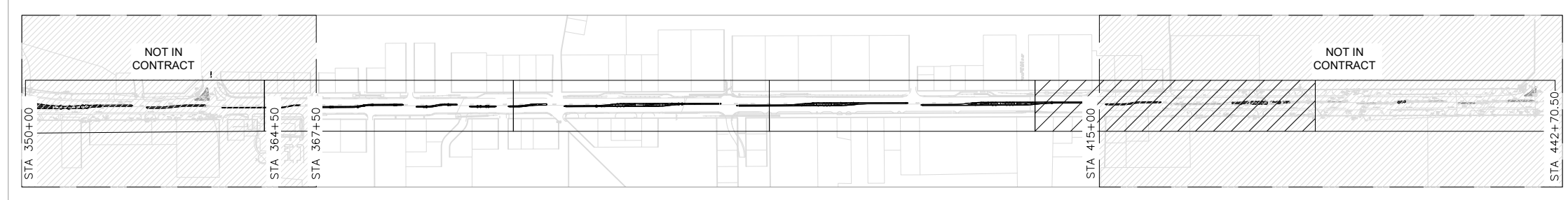
CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



**REFERENCE NOTES SCHEDULE 34**

SYMBOL	DESCRIPTION	QTY
	REMOVE ALL GROUNDCOVER, DECOMPOSED GRAVEL, AND DESERT WILLOW TREES IN HATCHED AREAS. EXISTING CRAPEMYRTLE TREES, ELM TREES, AND MOWSTRIPS ARE TO BE LEFT ALONE.	175 sf

	REMOVE ALL DECOMPOSED GRAVEL. ALL JUNIPERS TO REMAIN IN PLACE OR BE REPLACED IF DAMAGED DURING GRAVEL REMOVAL.	512 sf
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SHEET INDEX MAP  
 N.T.S.



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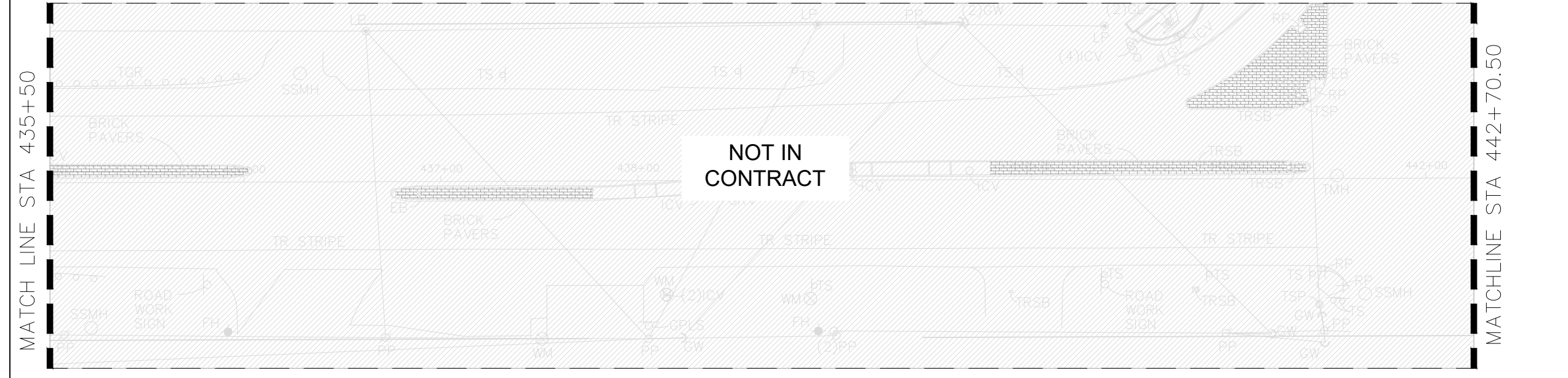
**DEMOLITION PLAN**  
 STA 412+00 - STA 428+00

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	36	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183

NOTE:  
 1. ALL LANDSCAPE PLANTINGS AND MULCH SHOWN TO BE REMOVED SHALL BE DISPOSED OF OFF-SITE. EXISTING IRRIGATION SHALL BE CAREFULLY DISCONNECTED, TRACKED AND BE MADE READY FOR RE-USE AFTER REQUIRED FILL IS ADDED TO MEDIANS AND GRADING IS ACCEPTED BY THE OWNER. IRRIGATION REMOVAL, DISCONNECTION AND TRACKING SHALL BE INCIDENTAL TO ITEM 100-6002 "PREPARING ROW". MAINLINE IRRIGATION LINE TO REMAIN IN PLACE.  
 2. PAYMENT FOR LANDSCAPE PLANTING REMOVAL SHALL BE PAID FOR UNDER ITEM 100-6002, PREPARING ROW.  
 3. CONTRACTOR TO REMOVE ALL WEEDS AND DEBRIS FROM EXISTING GRAVEL BEDS. WEED AND DEBRIS REMOVAL SHALL BE PAID FOR UNDER ITEM 100-6002, PREPARING ROW.



STA 428+00 - STA 435+50  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'



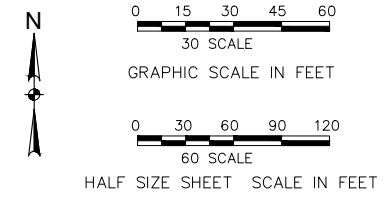
STA 435+50 - STA 442+70.5  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'

**KEY LEGEND**

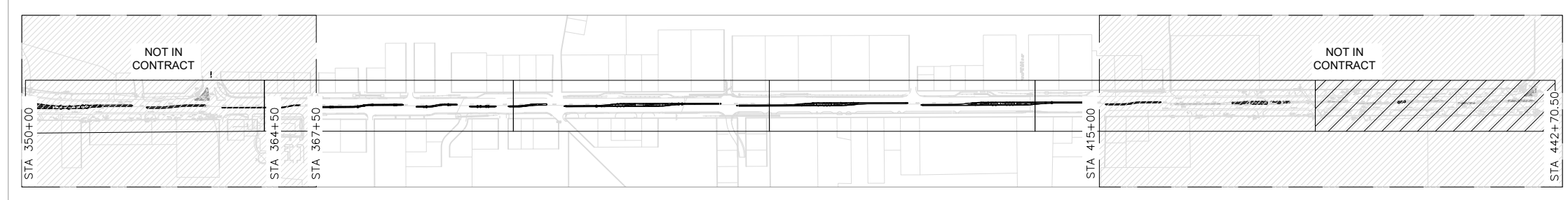
- DEMO TREE (DESERT WILLOW)
- DEMO GROUNDCOVER AND DECOMPOSED GRAVEL (MOW STRIPS ARE TO BE LEFT ALONE)
- TREE TO REMAIN (CRAPEMYRTLE & ELM TREES)

**DEMOLITION NOTES SCHEDULE**

SYMBOL	DESCRIPTION
	REMOVE ALL GROUNDCOVER, DECOMPOSED GRAVEL, AND DESERT WILLOW TREES IN Hatched AREAS. EXISTING CRAPEMYRTLE TREES, ELM TREES, AND MOWSTRIPS ARE TO BE LEFT ALONE.



CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



SHEET INDEX MAP  
 N.T.S.



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DEMOLITION PLAN  
 STA 428+00 - STA 442+70.50

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	37	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183



**SURFACE PREPARATION ITEM 160\* TOPSOIL SY / ITEM 161\* COMPOST MANUF. TOPSOIL (BOS) (4") SY**

**SURFACE PREPARATION**

Prepare planting area surface BEFORE placing Topsoil, Compost, Fertilizer, Seed and/or Sod. Once project area has been completed to final lines, grade and compaction, remove objectionable materials from planting area surface and cultivate existing surface to a depth of 4 inches, unless otherwise specified or directed.

Refer to Items 160 and 161 of TxDOT 2014 Standard Specifications\* for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.

**TOPSOIL NOTES:**

- When Topsoil is specified under Item 160, use suitable material salvaged from the project ROW in accordance with Item 160 specifications, and/or secure additional good material from approved sources.
- Topsoil shall include only the top 6 inches of its native surface, and be easily cultivated, fertile, erosion-resistant and free of objectionable materials.
- Topsoil obtained from sites outside of the ROW must come from approved sources and have a pH between 5.5 and 8.5 su.
- Place Topsoil on pre-cultivated surface, spread to a uniform loose cover at thickness specified, and shape per plans. Water and roll the finished surface with a light roller or other suitable equipment per Item 160.3; do not over-compact.

**COMPOST NOTES:**

- When Compost Manufactured Topsoil (4") is specified under Item 161, use compost meeting all requirements of Item 161.2 and Table 1. Provide quality control (QC) documentation and obtain Engineer approval prior to compost delivery.
- Contractor shall provide tickets/invoices that document material type, quantity and placement for all compost delivered.
- Additional topsoil may be required to be imported to achieve the compost/topsoil mix ratio. Topsoil must meet Item 160 specifications.

**APPLICATION OF COMPOST MANUFACTURED TOPSOIL (4")**

AFTER Surface Preparation, uniformly spread a 1-inch layer of compost on-grade with 3 inches topsoil over pre-cultivated planting area. (25% compost and 75% topsoil = 1" compost and 3" topsoil.) Then mix compost and topsoil together by cultivating the compost into the topsoil (by till or disk) to a 4-inch (4") depth. Roll the finished surface with a light corrugated drum; do not over-compact.

**FERTILIZER ITEM 166\* FERTILIZER AC**

**SOIL ANALYSIS FOR FERTILIZER APPLICATION RATE**

Unless otherwise stated in the plans, Contractor shall perform at least one soil analysis on each project before fertilization, and submit results to Engineer with recommended fertilizer rates based on soil analysis. Engineer may direct sample location(s). Soil analysis may be waived if both compost and sod are used on entire project.

**FERTILIZER NOTES:**

- Refer to Item 166 of TxDOT 2014 Standard Specifications\* for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.
- Apply fertilizer BEFORE seeding, or AFTER placing sod.
- Use fertilizer containing nitrogen (N), phosphoric acid (P) and potash (K) nutrients, unless otherwise specified. At least 50% of the Nitrogen component shall be a slow-release sulfur-coated urea as described in Item 166.3. Do not apply more than 60 lbs Nitrogen per acre without Engineer concurrence.
- Deliver fertilizer in bags, clearly labeled to show contents, unless otherwise specified or approved prior to delivery. When non-bagged, loose fertilizer is approved, provide documentation for each load of material delivered, to validate authenticity of the material.
- Apply fertilizer uniformly, as a dry, granular material, essentially dust-free, and do not mix with water for application as a slurry.
- When both temporary and permanent seeding are specified for the same area, apply half of the required fertilizer before the temporary seeding operation and the other half before the permanent seeding operation.

**SEEDING FOR EROSION CONTROL ITEM 164\* DRILL SEEDING AC**

RECOMMENDED PLANTING SEASON	PERMANENT RURAL SEED MIX ITEM 164 – DRILL SEEDING (PERM) (RURAL)(CLAY)	PERMANENT URBAN SEED MIX ITEM 164 – DRILL SEEDING (PERM) (URBAN)(CLAY)	TEMPORARY DRILL SEED MIX ITEM 164 – DRILL SEEDING (TEMP) (WARM OR COOL)
	Pure Live Seed Rate **	Pure Live Seed Rate **	Pure Live Seed Rate **
<b>WARM SEASON</b> Mar.15th, April, May, June, July, August, Sept. 15th	Green Sprangletop (Van Horn) – 1.0 lbs/AC Sideoats Grama (Haskell) – 1.0 lbs/AC Texas Grama (Atascosa) – 1.0 lbs/AC Hairy Grama (Chaparral) – 0.4 lbs/AC Shortspike Windmillgrass (Welder) – 0.2 lbs/AC Little Bluestem (OK Select) – 0.8 lbs/AC Purple Prairie Clover (Cuero) – 0.6 lbs/AC Engelmann Daisy (Eldorado) – 0.75lbs/AC Illinois Bundleflower – 1.3 lbs/AC Awnless Bushsunflower (Plateau) – 0.2 lbs/AC	Green Sprangletop (Leptochloa dubia) – 0.3 lbs/AC Sideoats Grama (El Reno)(Bouteloua curtipendula) – 3.6 lbs/AC Buffalograss (Texoka)(Buchloe dactyloides) – 1.6 lbs/AC Bermudagrass (Cynodon dactylon) – 2.4 lbs/AC	Foxtail Millet (Setaria italica) – 34 lbs/AC
<b>COOL SEASON</b> Sept 16th, Oct, Nov, Dec, Jan, Feb, Mar 14th			Pure Live Seed Rate ** Tall Fescue (Festuca arundinaceae) – 4.5 lbs/AC Western Wheatgrass (Agropyron smithii) – 5.6 lbs/AC Red Winter Wheat (Triticum aestivum) – 34 lbs/AC Cereal Rye – 34 lbs/AC

**SEEDING NOTES:**

- When seeding is specified under Item 164, refer to TxDOT 2014 Standard Specifications\* for specifications, dimensions, volumes, and measurements that have been modified or not shown. Materials and construction shall meet specifications.
- Conduct seeding upon completion of each applicable construction stage (dependent upon planting season requirements), without compensation for additional move-ins.
- Place seed AFTER preparing planting area surface. Refer to Surface Preparation detail this sheet, as well as Topsoil Item 160 and Compost Manufactured Topsoil Item 161 when specified. Apply fertilizer per Item 166 BEFORE seeding, per specifications and this sheet, to help drill the fertilizer into the soil.
- When temporary grasses are well-established and more than 2 inches tall, mow planting area before seeding permanent grasses; mowing for this purpose will be subsidiary. When vegetation is not already well-established, cultivate planting area to a depth as described in Item 164.3, before temporary seeding and before permanent seeding.
- Seed material must be appropriate to the location, soil type and season. Use the seed mix species and pure live seed rates designated in Tables 1-4 of the TxDOT 2014 Standard Specifications\* for Item 164, unless otherwise specified.
- All seed shall meet labeling, delivery, analysis, and testing requirements described in Item 164.2.1. Deliver seed in labeled, unopened bags or containers to Engineer prior to planting.
- Uniformly plant seed over the designated planting area, along the contour of slopes, and drill seed to a depth as described in Item 164.3.4.
- Hydroseeding may be allowed, when specified or Engineer concurs.
- Implement and continue Vegetative Watering per the schedule, rate and volume specified under Item 168.

**TxDOT REFERENCE MATERIALS:**

- \* "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES" 2014
- "A GUIDANCE TO ROADSIDE VEGETATION ESTABLISHMENT" 2004
- ONLINE TRAINING COURSE: MNT415 REVEGETATION DURING CONSTRUCTION
- DALLAS DISTRICT "VEGETATION ESTABLISHMENT GUIDELINES"

**SODDING FOR EROSION CONTROL ITEM 162\* BLOCK SOD (BERMUDA) SY**

BLOCK OR ROLL SOD	COMMON NAME	BOTANICAL NAME
	Common Bermuda Grass	Cynodon dactylon

**SODDING NOTES:**

- Refer to Item 162 of TxDOT 2014 Standard Specifications\* for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.
- Place sod between the average date of the last freeze in the Spring and 6 weeks before the average date of the first freeze in the Fall, per the Texas Almanac for the project area.
- Place sod only AFTER soil surface preparation is complete as detailed in this sheet. Dry soil may require pre-watering.
- Place all sod (blocks or rolls) within 24 hours of delivery to the site, and keep moist from the time it is dug up until it is planted. Sod with dried roots will not be accepted.
- Place sod with joints alternating on each row to prevent all joints from lining up, and place blocks firmly against adjacent blocks. Roll, tamp and trim sod per Item 162.3.
- Place fertilizer promptly AFTER sodding operation is complete in each area.
- Water sod immediately following placement, and continue Vegetative Watering per Item 168.

**VEGETATIVE WATERING FOR ESTABLISHING SEED AND SOD ITEM 168\* VEGETATIVE WATERING MG**

SEASON (Usual Months)	RATE	TIME SCHEDULE	TOTAL WATER ESTIMATE
SPRING & FALL (March, April, May, October)	7,000 gallons/acre per working day	Vegetative watering for seed shall begin on the day after rainfall described below and continue for 60 consecutive working days; vegetative watering for sod shall begin on the day the sod is placed and continue for a minimum of 15 consecutive working days.	420,000 gallons/acre (60 working days)
SUMMER (June, July, August, September)	12,000 gallons/acre per working day		720,000 gallons/acre (60 working days)
WINTER (November through February)	1,000 gallons/acre per working day	Vegetative watering for seed and/or sod shall begin on the day after placement for 15 consecutive working days	15,000 gallons/acre (15 working days)

Notes: Rate and frequency may be adjusted, with the approval of the Engineer, to meet site conditions (especially with sod). For informational purposes only: 1,000 gallons equals 1 MG

**VEGETATIVE WATERING NOTES:**

- Refer to Item 168 of TxDOT 2014 Standard Specifications\* for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.
- Use clean water free of industrial waste and other substances harmful to vegetation growth, per Item 168.2.
- Use Vegetative Watering to keep the seed bed moist during germination; not to provide initial watering. After drill seeding, postpone watering operations until site receives at least 1/2-inch of natural rainfall in a single day. Delay watering operations for warm season grasses until soil temperature exceeds 70 degrees F.
- For sod, water immediately.
- All water distribution equipment shall be furnished and operated to provide water at a uniform and controllable rate. Use a metering device on all watering equipment.
- Evenly distribute water over entire area designated for seeding and/or sodding, using even spray patterns that do not disturb seed bed and/or dislodge seed from seed bed.
- Do not water between the hours of 12:00 p.m. and 6:00 p.m. when daytime temperatures exceed 95 degrees F.
- After initial establishment period, continue intermittent watering of newly established seed or sod at a rate of approximately 1-inch water/week, during summer months until end of contract.
- If 1/4-inch or more of rainfall occurs on site on any given working day, no vegetative watering will be needed on that working day. (Note: 1/4-inch rain equals 7,000 gallons of water per acre.)
- Should the Contractor fail to apply the specified amount of water within the time allowed, any seed or sod in poor condition shall be replaced, fertilized, and watered at Contractor's expense.

**ROADSIDE MOWING ITEM 730\* PROJECT MAINTENANCE AC**

**MOWING NOTES:**

- During project construction, once seed is established, use mowing to promote permanent grasses by mowing any remaining temporary grasses.
- Also mow established turf and ROW grasses in designated areas of project limits as specified or directed by Engineer.
- Remove litter and debris prior to mowing.
- Do not mow on wet ground when soil rutting can occur.
- Hand-trim around obstructions and stormwater control devices as needed.
- Maintain paved surfaces free of tracked soils and clipped vegetation.

**SEQUENCE OF WORK:**

- CULTIVATE SURFACE SOIL.
- PREPARE / PLACE TOPSOIL, OR
- PREPARE / PLACE COMPOST MANUFACTURED TOPSOIL.
- APPLY FERTILIZER AND THEN PLACE SEEDING, OR
- PLACE SOD AND THEN APPLY FERTILIZER.
- CONDUCT VEGETATIVE WATERING.
- CONDUCT ROADSIDE MOWING, AS DIRECTED.



**VEGETATION ESTABLISHMENT SHEET**  
(FORT WORTH DISTRICT)

TEMPLATE REVISION DATE: 02/21/19

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	(See Title Sheet)		FM 183
CHECK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	FTW	TARRANT	38
CHECK	CONTROL	SECTION	JOB	
	0094	02	146	

USER ID

DATE



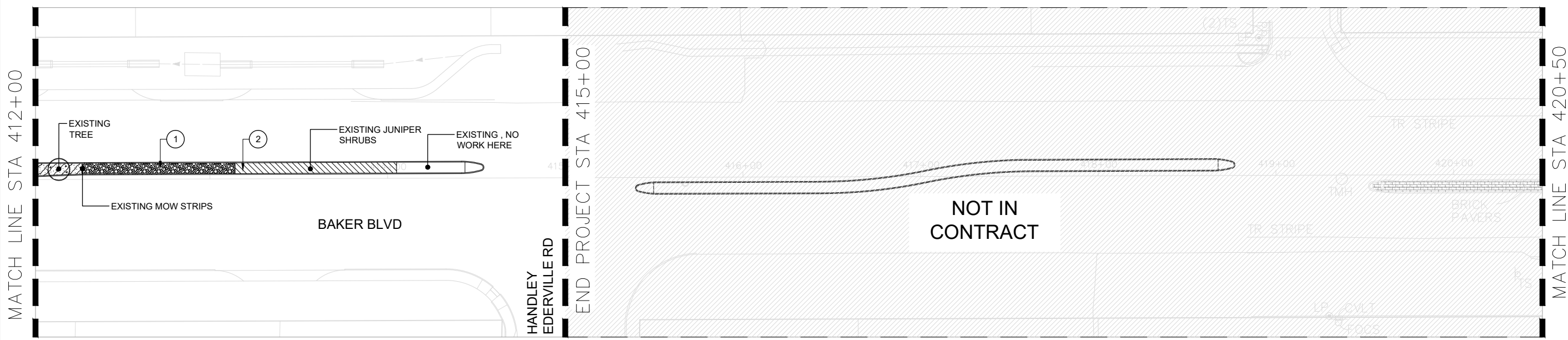




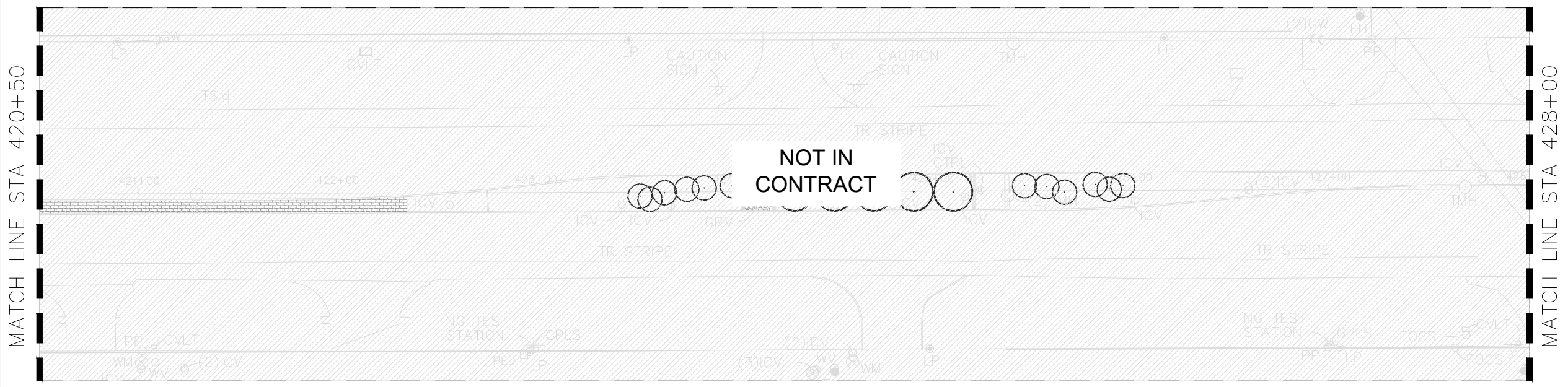




55155PL183333  
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STA 412+00 - STA 420+50  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'



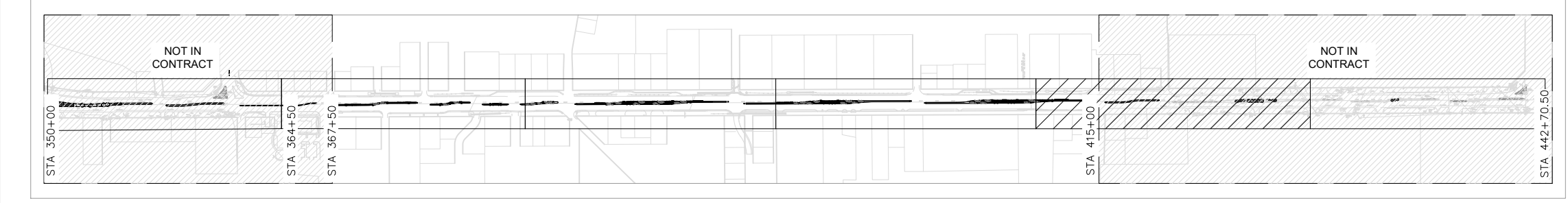
STA 420+50 - STA 428+00  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'

**PLANT SCHEDULE STA 412+00 - 428+00**

SHRUB AREAS	QTY	COMMON NAME	CONT	SPACING
EP	175	Purple Wintercreeper	1 gal.	12" o.c.

**REFERENCE NOTES SCHEDULE STA 412+00 - 428+00**

SYMBOL	DESCRIPTION	QTY	DETAIL
①	DECORATIVE ROCK (1 1/2" - 2")	6.35 cy	/
②	MULCH (3 IN. DEPTH)	5.05 cy	

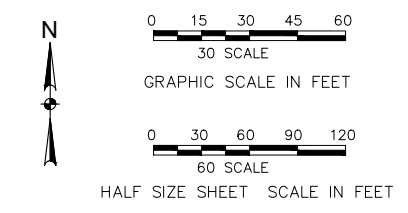


SHEET INDEX MAP  
N.T.S.

**GENERAL NOTES**

- THE ENTIRE LIMITS OF IMPROVEMENTS WERE SURVEYED. ALL LINWORK IS APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO CONTRACTORS SUBMITTING THEIR BID.
- ALL UTILITIES SHOWN ON PLANS ARE APPROPRIATE AUTHORITIES.
- REFERENCE SHEET 20 - PLANTING DETAILS FOR ENTIRE PLANT SCHEDULE.

06/13/2023  
 IN 500 FEET OF A TXDOT SIGNAL WILL REQUIRE THE CONTRACTOR TO CONTACT TXDOT FORT WORTH SIGNAL SHOP.



CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



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PLANTING PLAN  
 STA 412+00 - STA 428+00

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	44	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183

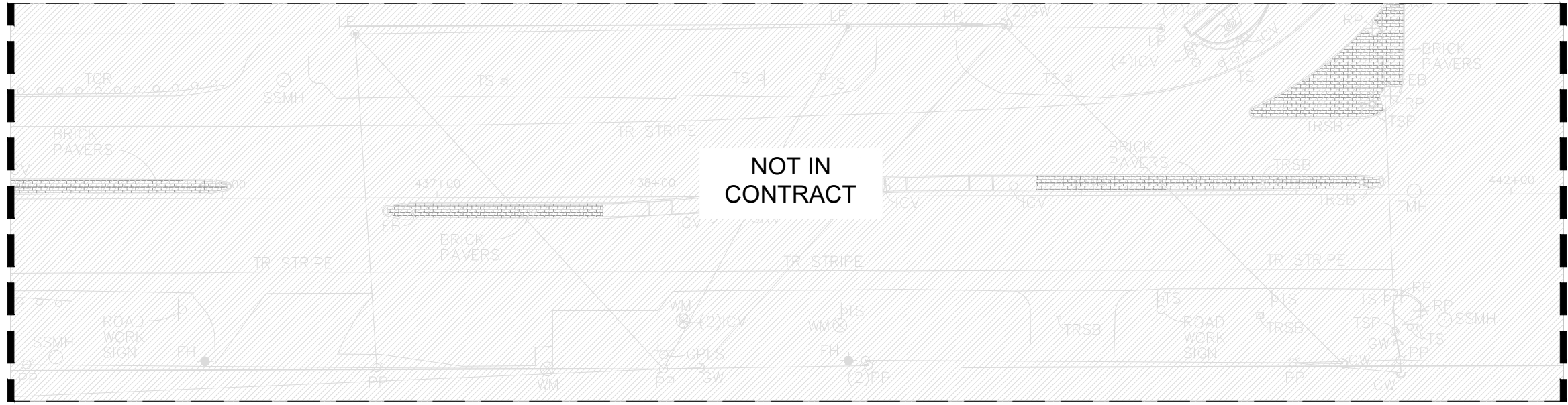
MATCH LINE STA 428+00



MATCH LINE STA 435+50

STA 428+00 - STA 435+50  
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 Half Size: 1" = 60'

MATCH LINE STA 435+50

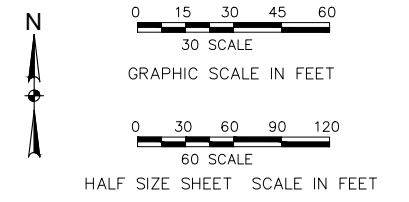


MATCHLINE STA 442+70.50

STA 435+50 - STA 442+70.5  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'

### GENERAL NOTES

1. THE ENTIRE LIMITS OF IMPROVEMENTS WERE SURVEYED. ALL LINWORK IS APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO CONTRACTORS SUBMITTING THEIR BID.
2. ALL UTILITIES SHOWN ON PLANS ARE APPROPRIATE AUTHORITIES.
3. REFERENCE SHEET 20 - PLANTING DETAILS FOR ENTIRE PLANT SCHEDULE.
4. ANY WORK WITHIN 500 FEET OF A TXDOT SIGNAL WILL REQUIRE THE CONTRACTOR TO CONTACT TXDOT FORT WORTH SIGNAL SHOP.

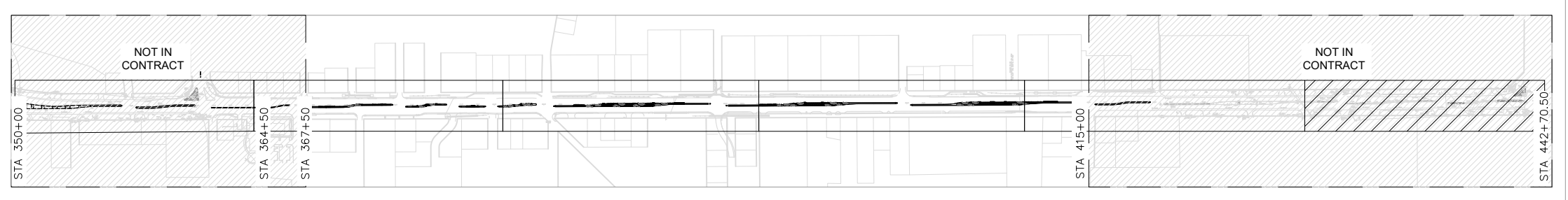


CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



05/19/2023

DATE: 5/19/23



SHEET INDEX MAP  
N.T.S.

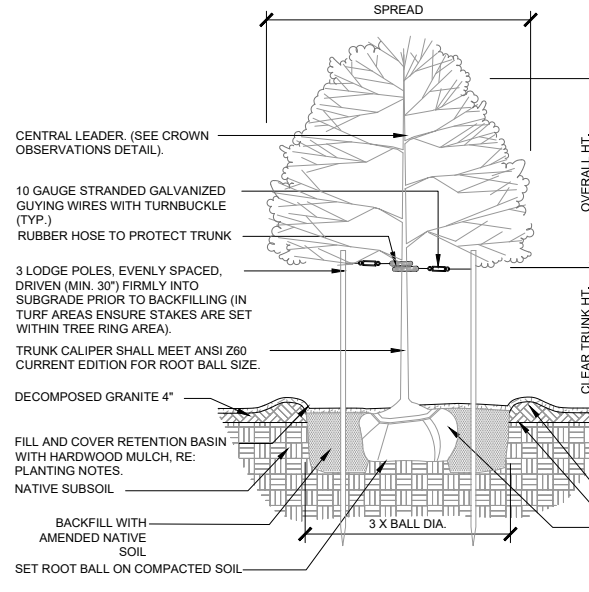


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### PLANTING PLAN STA 428+00 - STA 442+70.50

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	45	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183





- NOTES:**
- CONTRACTOR TO STAKE TREE LOCATION FOR OWNER AND LANDSCAPE ARCHITECT APPROVAL PRIOR TO INSTALLATION.
  - SET TREE SO THAT TOP OF ROOTBALL IS FLUSH WITH FINISHED GRADE.
  - SAUCERS TO BE CIRCULAR IN SHAPE AND CONSISTENT IN SIZE. SLOPE SIDES TO GENTLE, UNIFORM PROFILE.
  - DIG PIT WITH TAPERED SIDES SO THAT TOTAL WIDTH AT TOP IS 3 TIMES ROOTBALL DIAMETER.
  - PRIOR TO MULCHING, LIGHTLY TAMP SOIL AROUND THE ROOT BALL IN 6" LIFTS TO BRACE TREE. DO NOT OVER COMPACT. WHEN THE PLANTING HOLE HAS BEEN BACKFILLED, POUR WATER AROUND THE ROOT BALL TO SETTLE THE SOIL.
  - SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

**1 TREE PLANTING W/ LODGE POLES**

N.T.S.

**PLANTING SPECIFICATIONS**

**NOTE:** All tree plantings to receive a Pro-active Mycorrhizal treatment at time of planting and during "establishment" as specified by (Plant Health Care, Inc.) www.planthealthcare.com 1.800.421.9051

**PREPARATION:** LANDSCAPE CONTRACTOR AND REPRESENTATIVE OF OWNER SHALL BE RESPONSIBLE FOR VERIFYING THE CORRECT LOCATION OF ALL UNDERGROUND UTILITIES, PIPES, STRUCTURES, AND LINE RUNS IN THE FIELD PRIOR TO THE INSTALLATION OF ANY PLANT MATERIALS.

**PLANT LOCATIONS:** REFER TO PLANTING PLAN FOR PLANTING LOCATION AND PLANT MATERIAL LEGEND FOR SPECIFICATIONS. MATERIAL LOCATION TO BE STAKED IN THE FIELD AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO PLANTING

**GRADING AND DRAINAGE:** Half Associates, Inc. ASSUMES NO RESPONSIBILITY FOR FAILURE OF ANY HARDSCAPE AMENITY SUCH AS WALKS, ENTRANCES TO STRUCTURES, AND PLANTER BEDS FORMED OR ENCLOSED BY EDGING AND FLAT WORK WHICH DO NOT DRAIN DUE TO IMPROPER SET UP OF ELEVATIONS DURING CONSTRUCTION. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR FINE GRADING, AND VERIFYING THAT WATER DRAINS AWAY FROM BUILDING.

**COORDINATION:** LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH OTHER CONTRACTORS ON SITE AS REQUIRED TO ACCOMPLISH ALL PLANTING OPERATIONS.

**MAINTENANCE:** LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PLANTING BEDS IN A WEED AND DEBRIS FREE CONDITION AND SHALL ACCOMPLISH WATERING BY HAND AS DEEMED NECESSARY UNTIL SUBSTANTIAL COMPLETION AND ACCEPTANCE BY THE OWNER. THE CONTRACTOR SHALL MAINTAIN ALL WORK FOR A PERIOD OF 30 DAYS AFTER SUBSTANTIAL COMPLETION AND ACCEPTANCE.

**VERIFICATION:** LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL QUANTITIES PER DRAWINGS AND SPECIFICATION BY LANDSCAPE ARCHITECT. PLANT QUANTITIES HAVE BEEN PROVIDED AS A CONVENIENCE ONLY AND SHALL NOT BE CONSIDERED ABSOLUTE. LANDSCAPE ARCHITECT TO BE NOTIFIED IF DISCREPANCIES OCCUR. OTHERWISE, THE CONTRACTOR IS TO BID THEIR OWN VERIFIED QUANTITIES PER LANDSCAPE PLAN.

**PLANTING BEDS:** ALL BED AREAS ARE TO BE LEFT 3" ABOVE FINISHED GRADE OF ADJACENT PAVEMENT TO INCLUDE 3" OF MULCH AFTER COMPACTION AND SETTLEMENT. ALL BED AREAS SHALL HAVE 2" OF COMPOST ROTOTILLED TO A DEPTH OF 6".

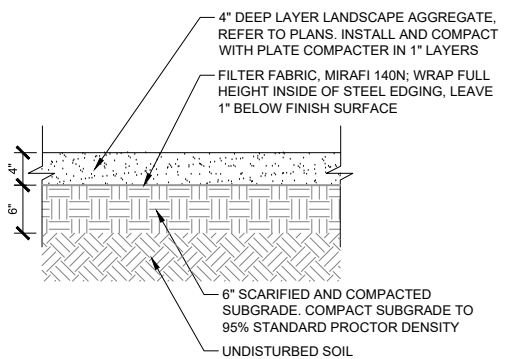
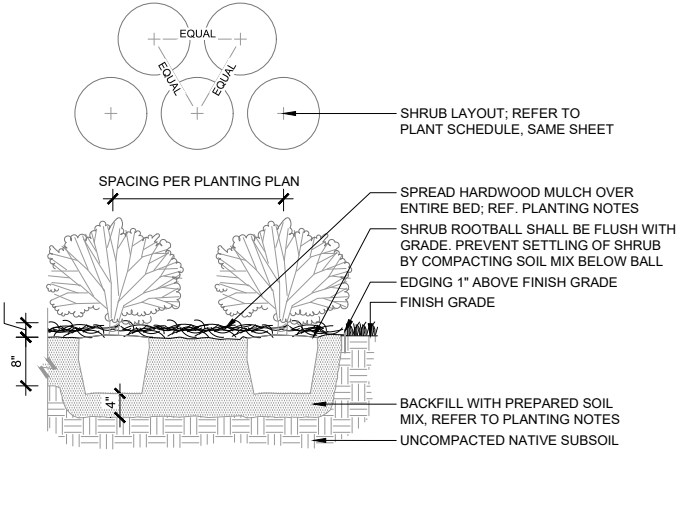
**MULCH:** AFTER SETTLEMENT AND COMPACTION, ALL PLANTING BEDS SHALL RECEIVE A MINIMUM 3" LAYER OF MULCH. ALL AREAS DISTURBED BY PLANTING OPERATIONS SHALL BE FINE GRADED AND RE SEEDED.

**PLANT SCHEDULE**

TREES	QTY	COMMON NAME	CONT	
CT	15	Texas Redbud	30 gal.	
SHRUBS	QTY	COMMON NAME	CONT	
RS	361	Snow White Indian Hawthorn	2 gal.	
SHRUB AREAS	QTY	COMMON NAME	CONT	SPACING
EP	15,564	Purple Wintercreeper	1 gal.	12" o.c.
JH	231	Creeping Juniper	5 gal.	60" o.c.
NC	1,818	Catmint	1 gal.	12" o.c.

**REFERENCE NOTES SCHEDULE**

SYMBOL	DESCRIPTION	QTY	DETAIL
①	DECORATIVE ROCK (1 1/2"- 2")	56.65 cy	3/20
③	192 6013 MULCH (3" DEPTH)	223.17 cy	
⑤	SOIL MIX (8" DEPTH)	595.39 cy	



**2 SHRUB BED PLANTING**

N.T.S.

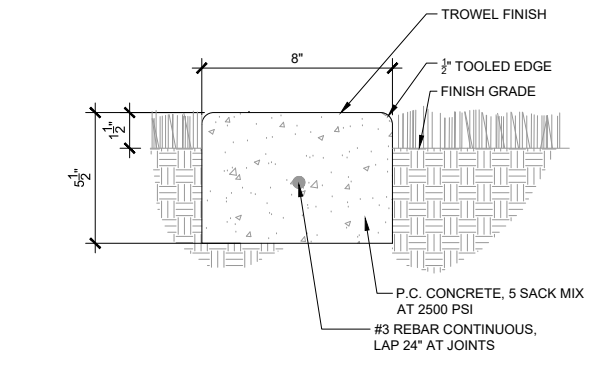
**3 LANDSCAPE GRAVEL**

1" = 1'-0"

CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



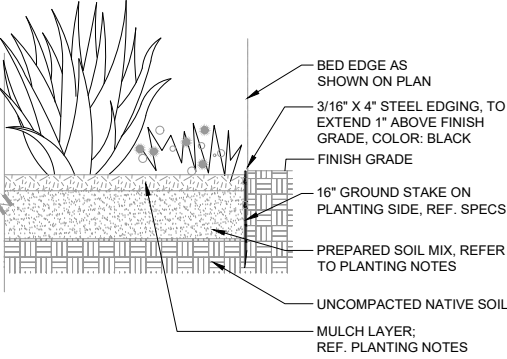
05/19/2023



- NOTES:**
- REFER TO LANDSCAPE PLAN FOR EXPANSION JOINT LOCATION.

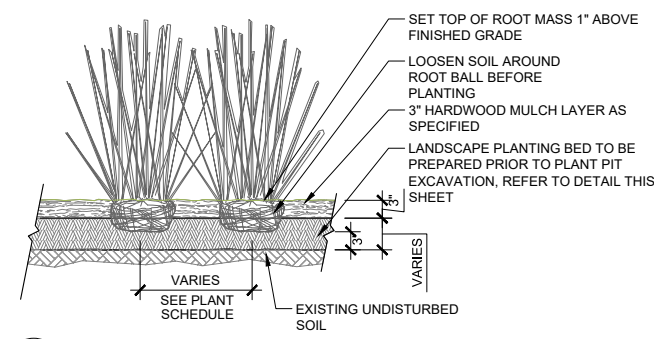
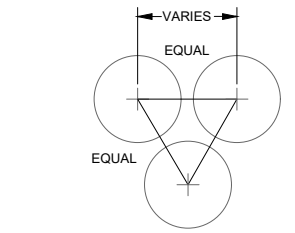
**4 CONCRETE ACCENT BAND**

3" = 1'-0"



**5 TYPICAL STEEL EDGING**

1" = 1'-0"



**6 ORNAMENTAL GRASS**

3/4" = 1'-0"

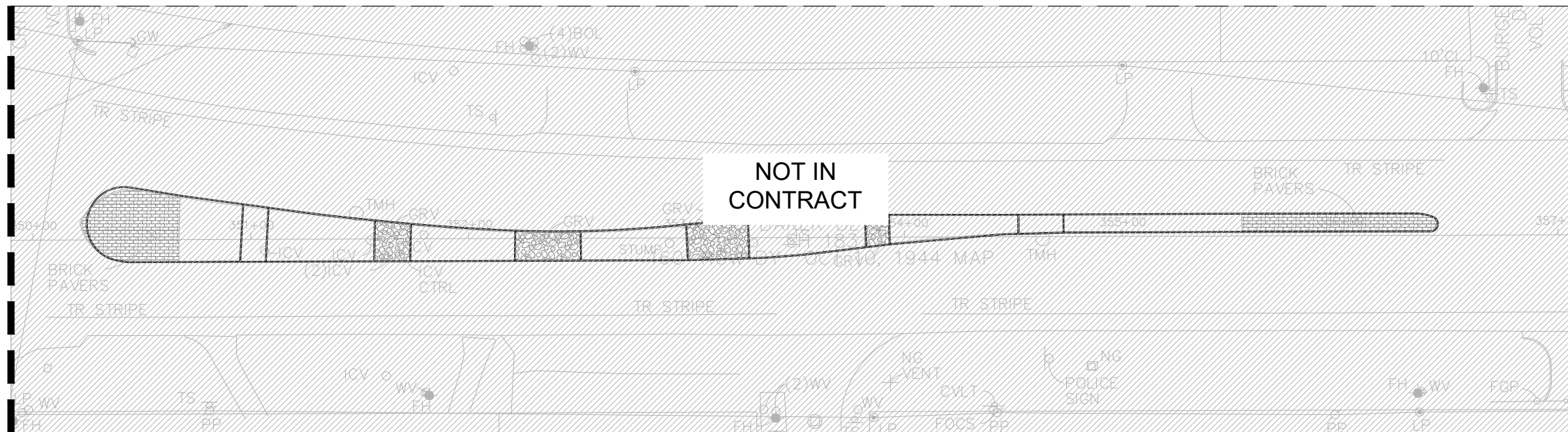


Texas Department of Transportation

**PLANTING DETAILS**

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	46	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183

MATCH LINE STA 350+00

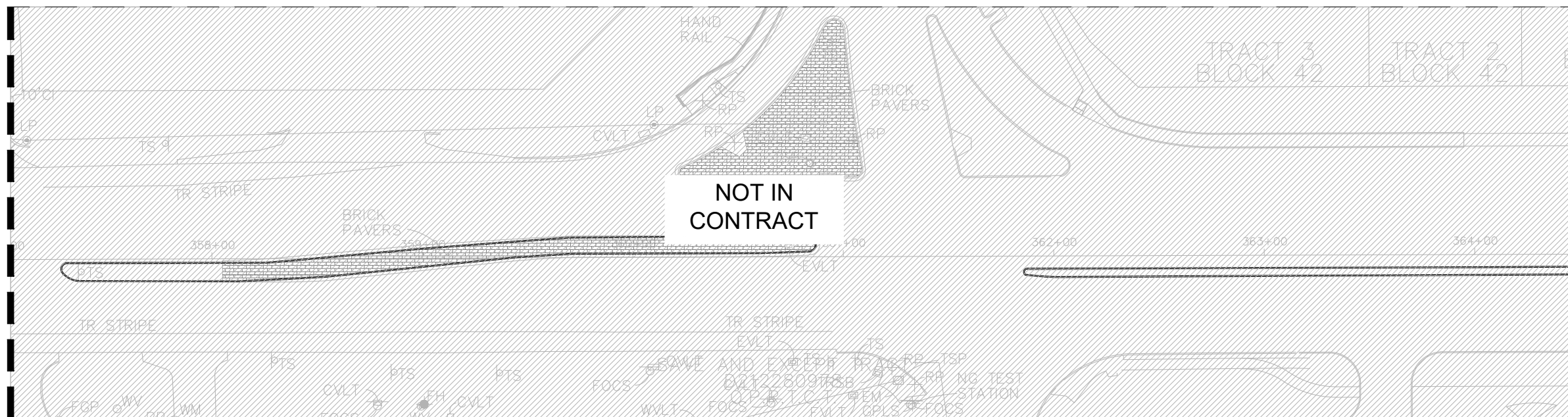


MATCH LINE STA 357+00

STA 350+00 - STA 357+00

Full Size: 1" = 30'  
Half Size: 1" = 60'

MATCH LINE STA 357+00



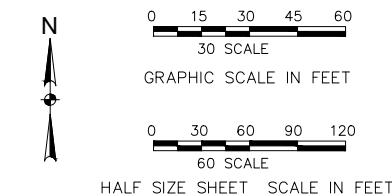
MATCH LINE STA 364+50

STA 357+00 - STA 364+50

Full Size: 1" = 30'  
Half Size: 1" = 60'

### GENERAL NOTES

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2. ALL UTILITIES SHOWN ON PLANS ARE APPROPRIATE AUTHORITIES.
3. REFERENCE SHEET 51 - IRRIGATION DETAILS.
4. PROPOSED IRRIGATION TO CONNECT TO EXISTING IRRIGATION SYSTEM. CONTRACTOR TO VERIFY LOCATIONS OF EXISTING IRRIGATION, AVAILABLE PRESSURE, AND EXISTING CONTROLLER CAPACITY. IF CONTROLLER DOES NOT HAVE ADEQUATE CAPACITY, CONTRACTOR TO LOCATE AND INSTALL NEW CONTROLLER.
5. ANY WORK WITHIN 500 FEET OF A TXDOT SIGNAL WILL REQUIRE THE CONTRACTOR TO CONTACT TXDOT FORT WORTH SIGNAL SHOP.

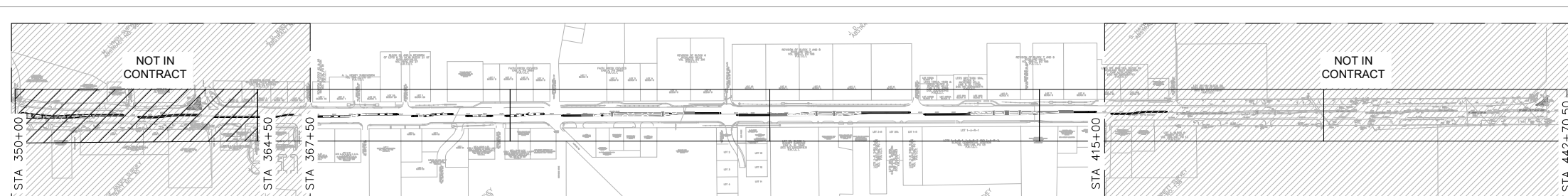


CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



05/19/2023

DATE: 5/19/23



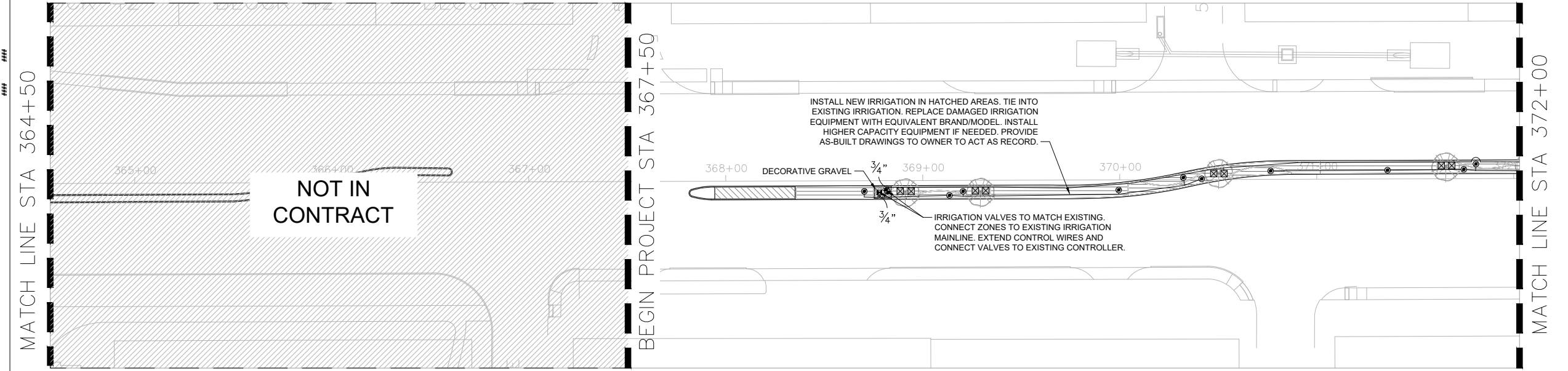
SHEET INDEX MAP  
N.T.S.



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## IRRIGATION PLAN STA 350+00 - STA 364+50

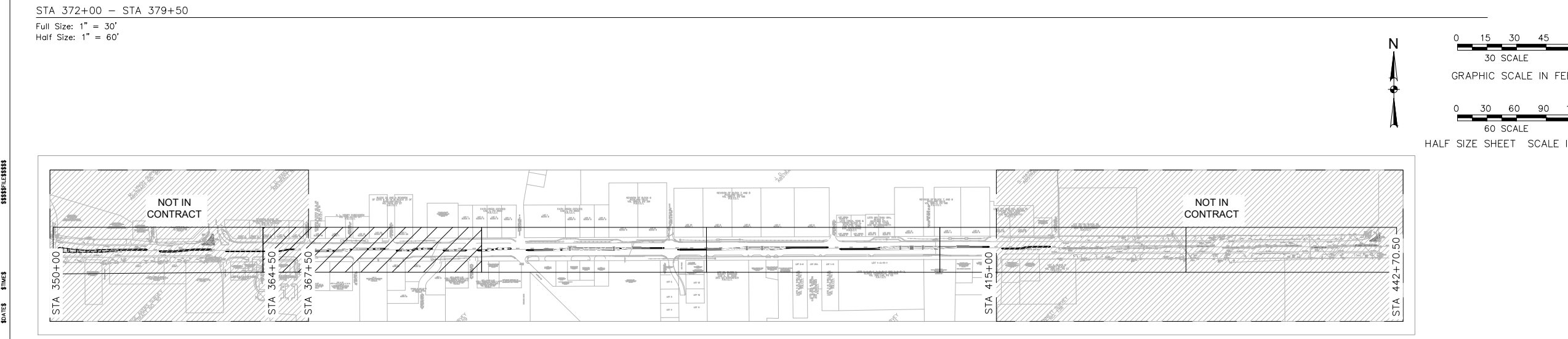
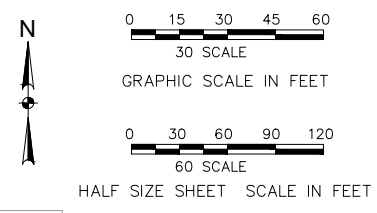
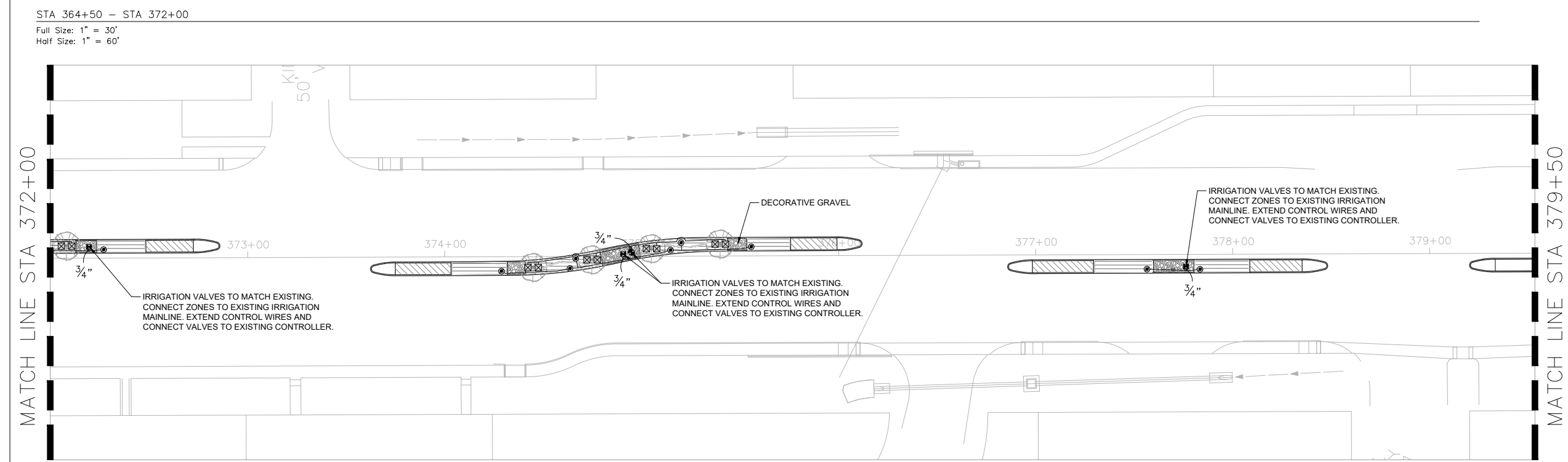
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	47	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183



IRRIGATION SCHEDULE	
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Tree Bubbler To Match Existing. (2) per Tree.
	Drip Control Zone Kit To Match Existing
	Pipe Transition Point in Drip Box
	Area to Receive Dripline Dripline to Match Existing.
	Irrigation Control Valve Electric Remote Control Valves to Match Existing
	Irrigation Lateral Line: PVC Class 200 SDR 21

- GENERAL NOTES**
- THE ENTIRE LIMITS OF IMPROVEMENTS WERE SURVEYED. ALL LINWORK IS APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO CONTRACTORS SUBMITTING THEIR BID.
  - ALL UTILITIES SHOWN ON PLANS ARE APPROPRIATE AUTHORITIES.
  - REFERENCE SHEET 51 – IRRIGATION DETAILS.
  - PROPOSED IRRIGATION TO CONNECT TO EXISTING IRRIGATION SYSTEM. CONTRACTOR TO VERIFY LOCATIONS OF EXISTING IRRIGATION, AVAILABLE PRESSURE, AND EXISTING CONTROLLER CAPACITY.
- 06/13/2023** DOES NOT HAVE ADEQUATE CAPACITY, CONTRACTOR TO LOCATE AND INSTALL NEW CONTROLLER.
- ANY WORK WITHIN 500 FEET OF A TXDOT SIGNAL WILL REQUIRE THE CONTRACTOR TO CONTACT TXDOT FORT WORTH SIGNAL SHOP.

CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



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IRRIGATION PLAN  
STA 364+50 – STA 379+50

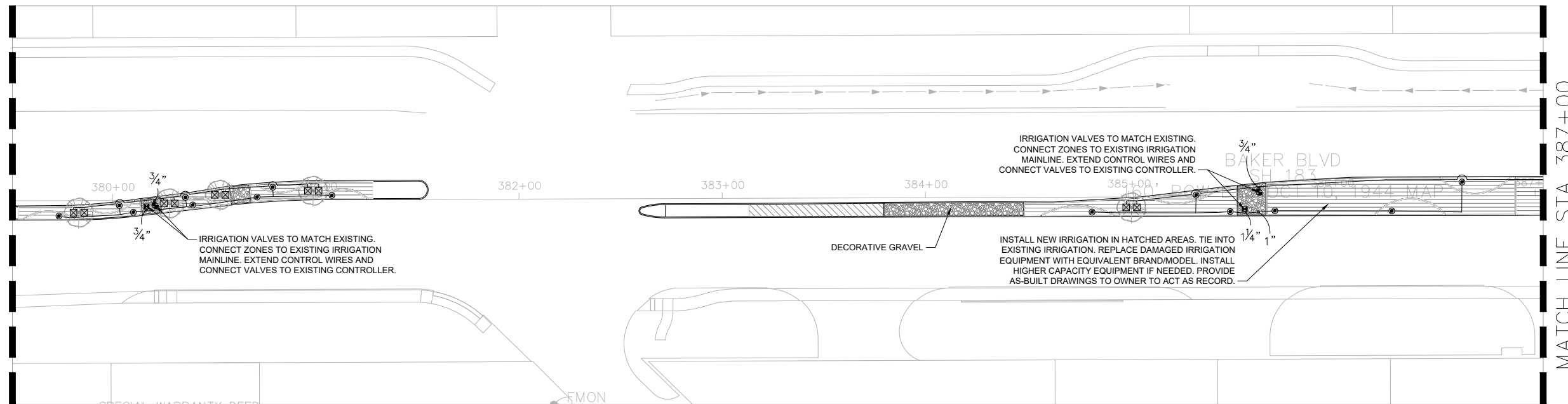
FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	48	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183

DATE: 06/13/23

SHEET INDEX MAP  
N.T.S.

###

MATCH LINE STA 379+50

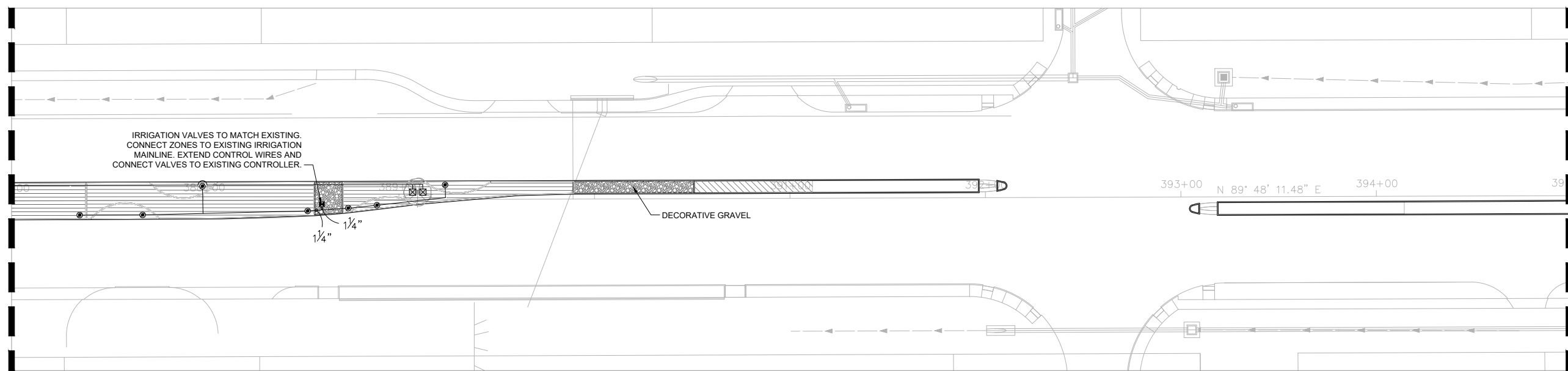


MATCH LINE STA 387+00

STA 379+50 - STA 387+00

Full Size: 1" = 30'  
Half Size: 1" = 60'

MATCH LINE STA 387+00



MATCH LINE STA 395+00

STA 387+00 - STA 395+00

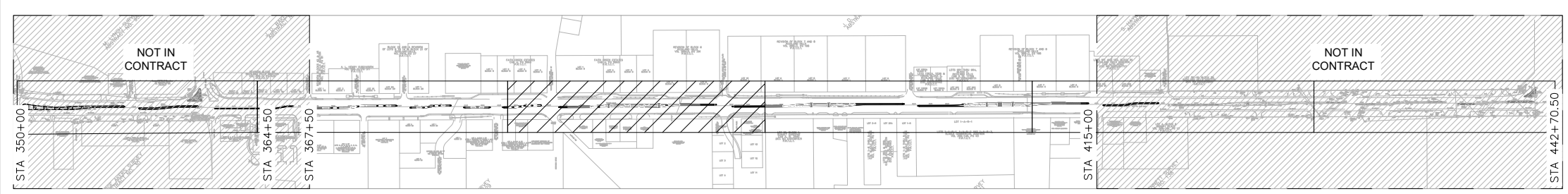
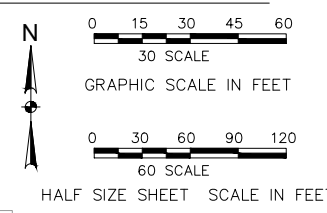
Full Size: 1" = 30'  
Half Size: 1" = 60'

IRRIGATION SCHEDULE	
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Tree Bubbler To Match Existing. (2) per Tree.
	Drip Control Zone Kit To Match Existing
	Pipe Transition Point in Drip Box
	Area to Receive Dripline Dripline to Match Existing.
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Irrigation Control Valve Electric Remote Control Valves to Match Existing
	Irrigation Lateral Line: PVC Class 200 SDR 21

**GENERAL NOTES**

1. THE ENTIRE LIMITS OF IMPROVEMENTS WERE SURVEYED. ALL LINWORK IS APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO CONTRACTORS SUBMITTING THEIR BID.
2. ALL UTILITIES SHOWN ON PLANS ARE APPROPRIATE AUTHORITIES.
3. REFERENCE SHEET 51 - IRRIGATION DETAILS.
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5. ANY WORK WITHIN 500 FEET OF A TXDOT SIGNAL WILL REQUIRE THE CONTRACTOR TO CONTACT TXDOT FORT WORTH SIGNAL SHOP.

CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



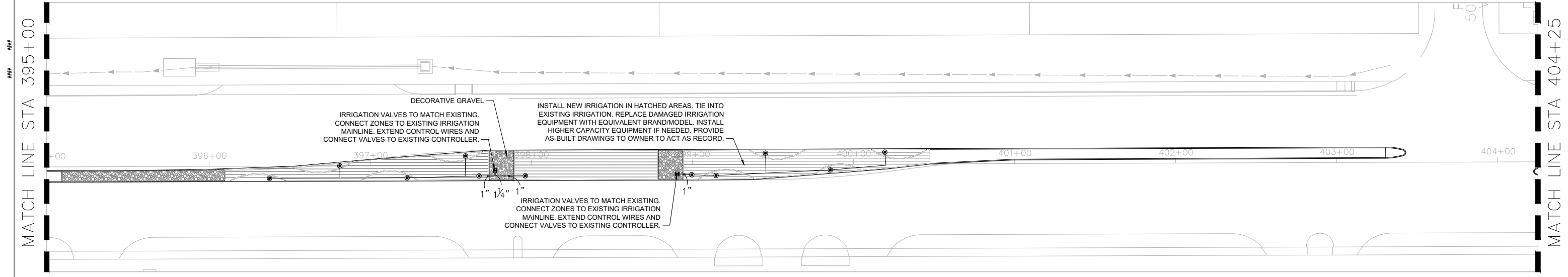
SHEET INDEX MAP  
N.T.S.

**halff**  
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IRRIGATION PLAN  
STA 379+50 - STA 395+00

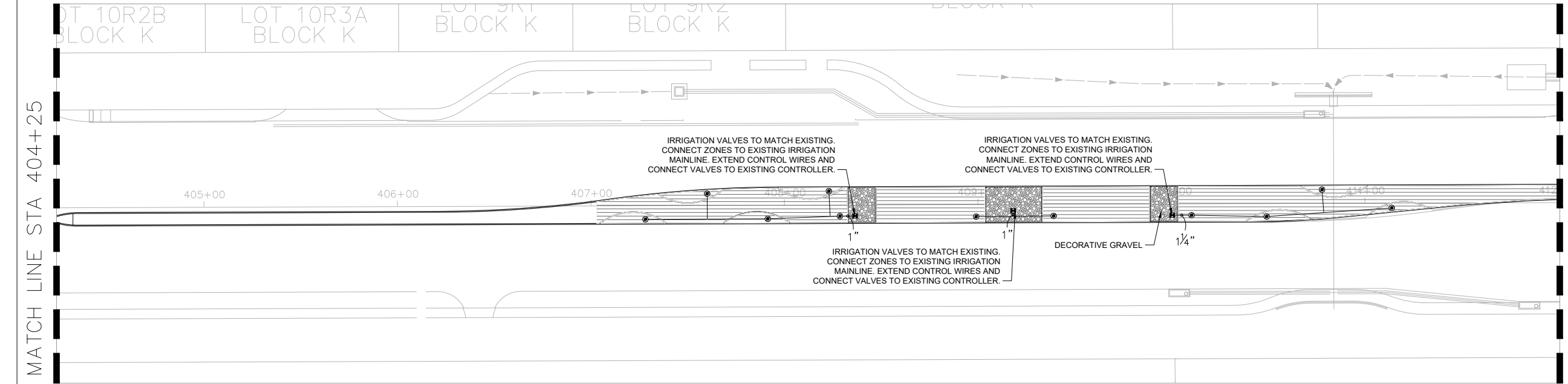
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STATE TEXAS	DISTRICT FTW	COUNTY TARRANT
CONTROL 0094	SECTION 02	JOB 146
		HIGHWAY NO. SH 183

DATE: 06/13/23



STA 395+00 - STA 404+25

Full Size: 1" = 30'  
Half Size: 1" = 60'



STA 404+25 - STA 412+00

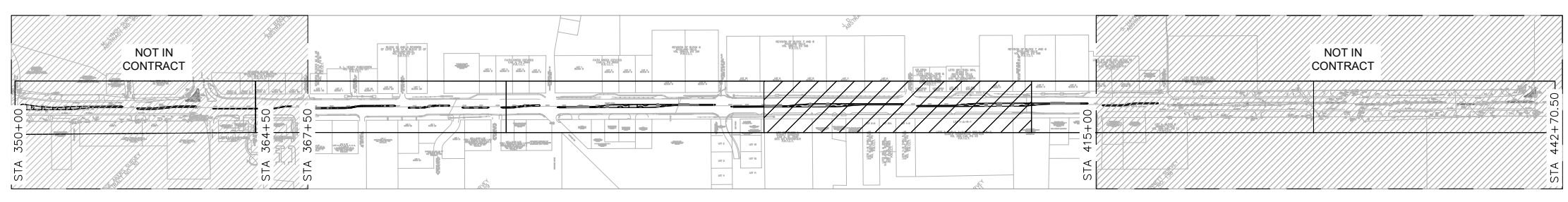
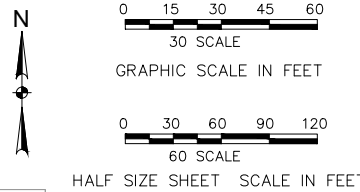
Full Size: 1" = 30'  
Half Size: 1" = 60'

**GENERAL NOTES**

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06/13/2023

CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



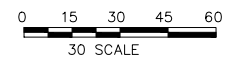
SHEET INDEX MAP  
N.T.S.



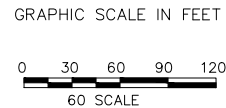
Texas Department of Transportation

IRRIGATION PLAN  
STA 395+00 - STA 412+00

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	50	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183



30 SCALE

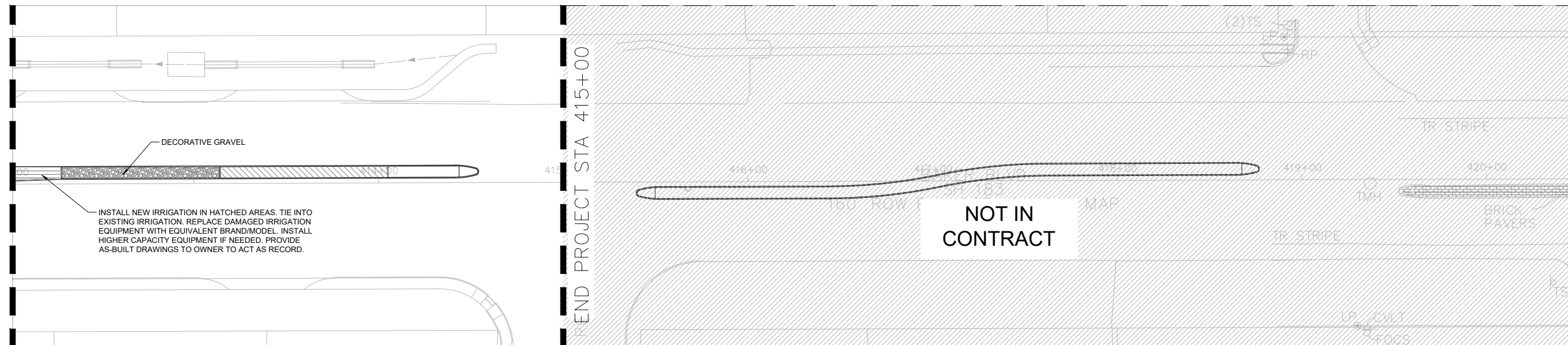


60 SCALE

HALF SIZE SHEET SCALE IN FEET

###

MATCH LINE STA 412+00



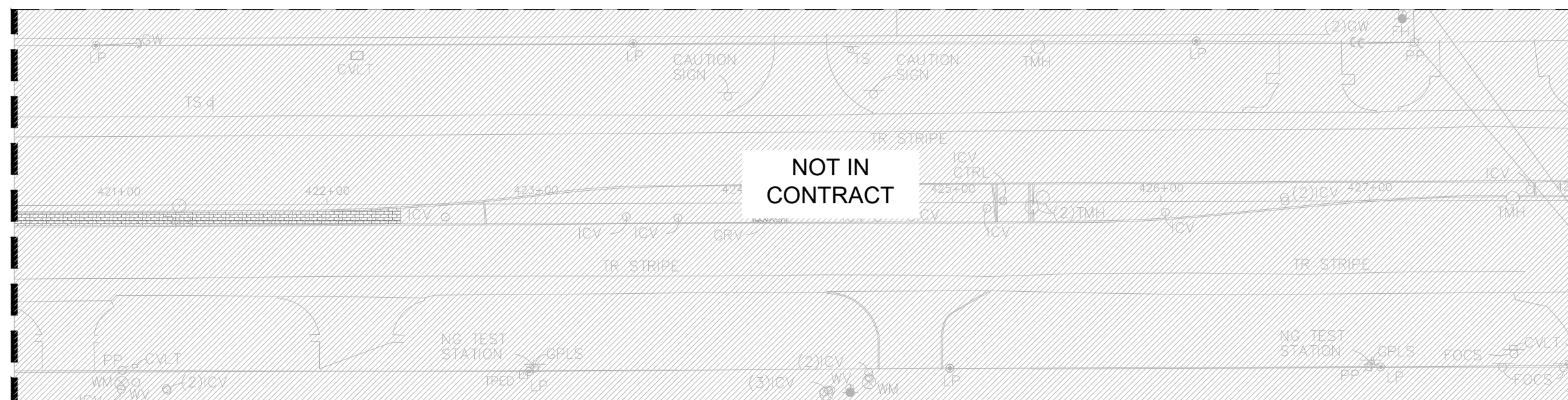
MATCH LINE STA 420+50

END PROJECT STA 415+00

STA 412+00 - STA 420+50

Full Size: 1" = 30'  
Half Size: 1" = 60'

MATCH LINE STA 420+50



MATCH LINE STA 428+00

STA 420+50 - STA 428+00

Full Size: 1" = 30'  
Half Size: 1" = 60'

### GENERAL NOTES

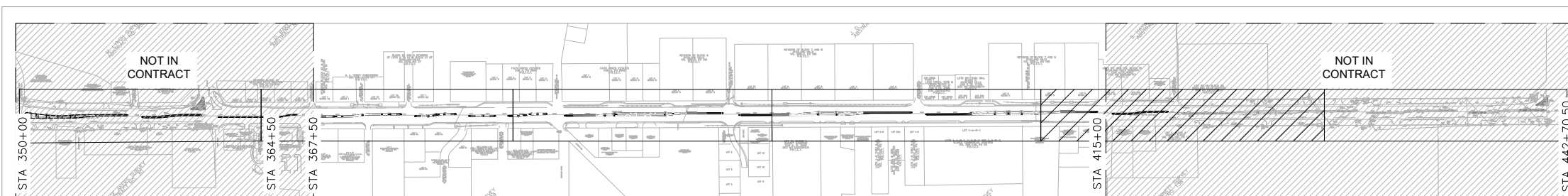
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06/13/2023

CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



5555PL15555



SHEET INDEX MAP  
N.T.S.



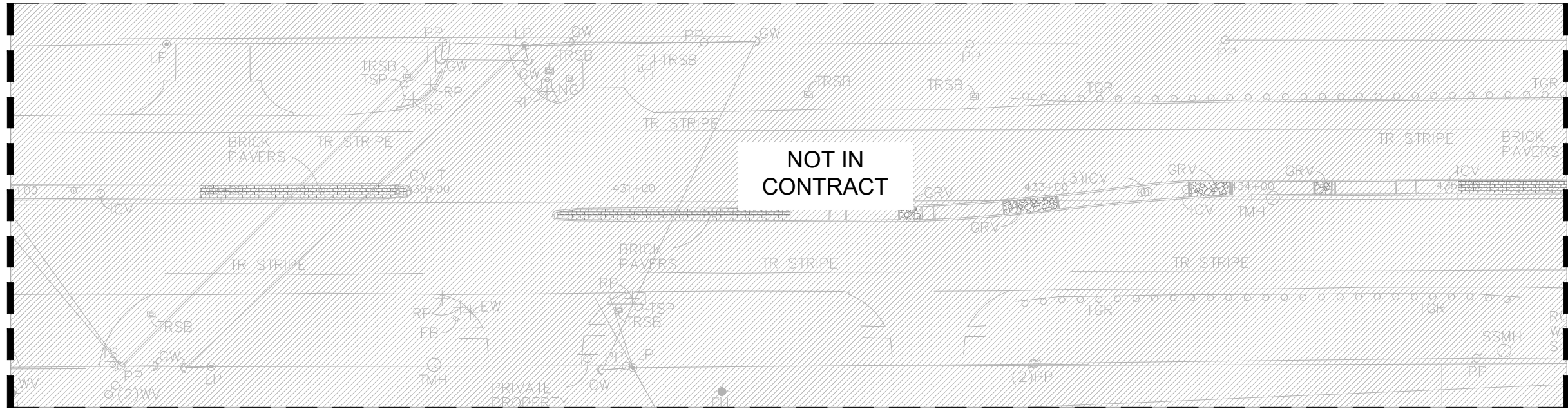
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### IRRIGATION PLAN STA 412+00 - STA 428+00

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	51	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183

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DATE - 06/13/2023  
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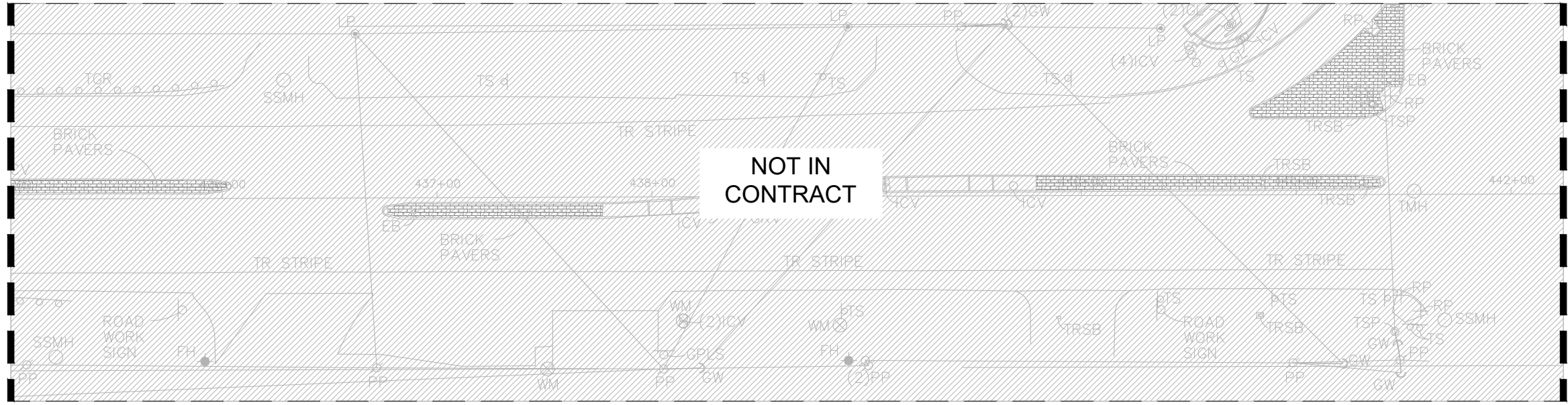
MATCH LINE STA 428+00



MATCH LINE STA 435+50

STA 428+00 - STA 435+50  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'

MATCH LINE STA 435+50

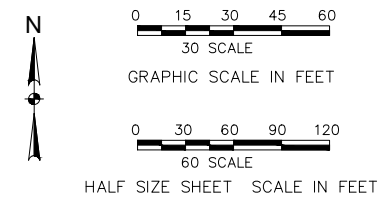


MATCHLINE STA 442+70.50

STA 435+50 - STA 442+70.5  
 Full Size: 1" = 30'  
 Half Size: 1" = 60'

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CALL TXDOT TRAFFIC MANAGEMENT CENTER  
 (817-370-3661) FOR TXDOT LOCATES WHEN  
 WORKING NEAR EXISTING TRAFFIC SIGNAL.



05/19/2023

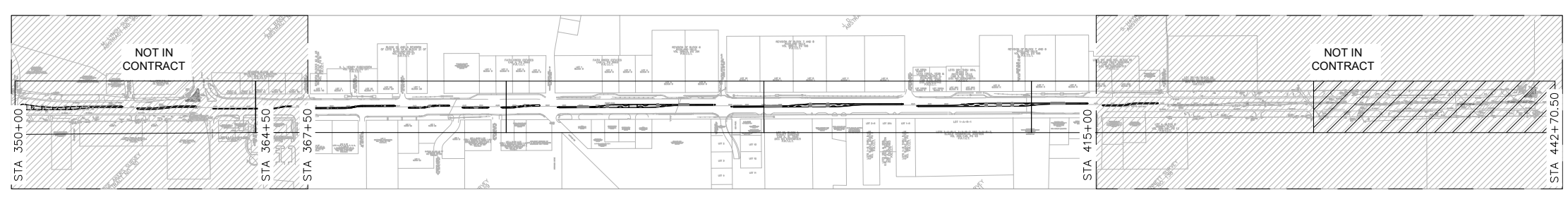


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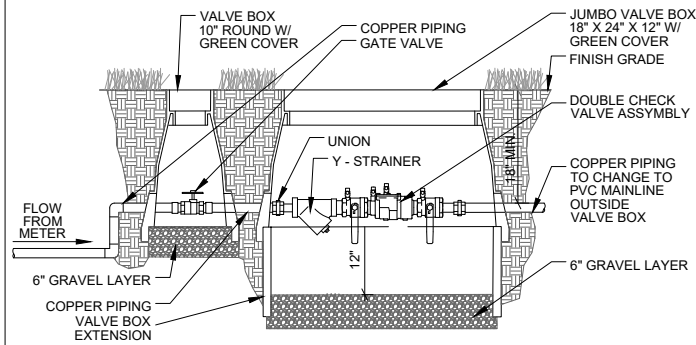
### IRRIGATION PLAN STA 428+00 - STA 442+70.50

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	SEE TITLE SHEET	52	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	HIGHWAY NO.
0094	02	146	SH 183

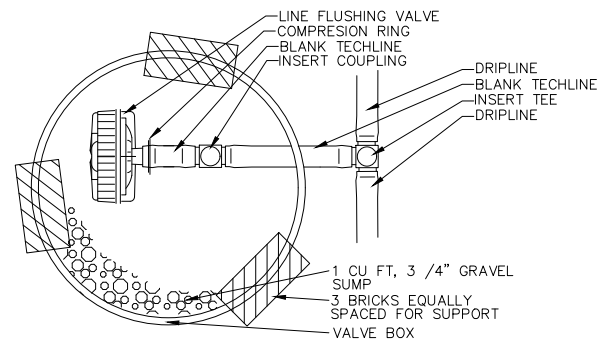
5535P13333



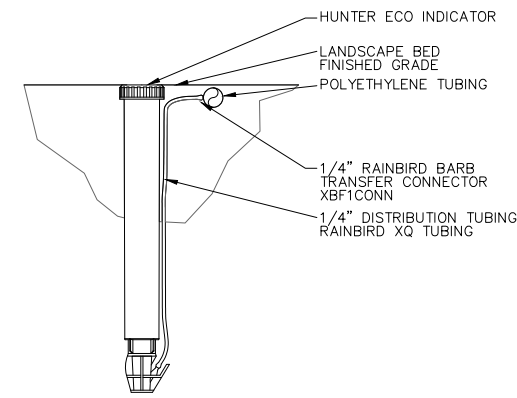
SHEET INDEX MAP  
 N.T.S.



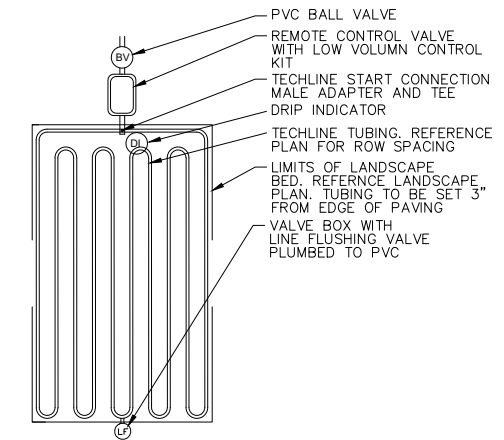
**1** REDUCED PRESSURE ZONE ASSEMBLY  
1" = 1'-0"



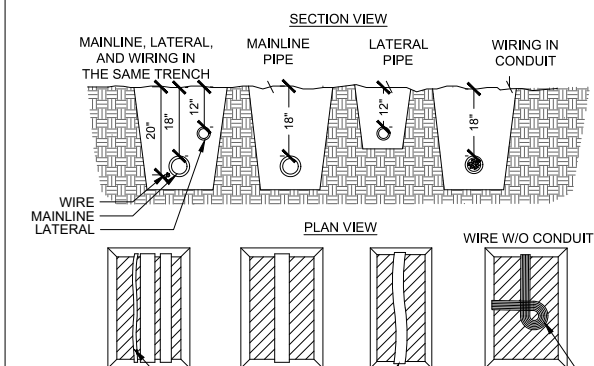
**2** LINE FLUSHING VALVE  
1" = 1'-0"



**3** DRIP OPERATION INDICATOR  
1" = 1'-0"



**4** DRIP IRRIGATION - LANDSCAPE BEDS  
1" = 1'-0"



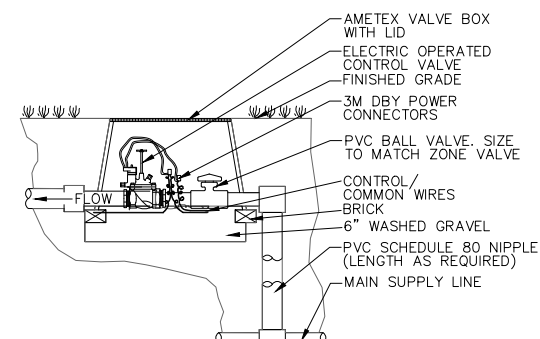
NOTES:  
1. SLEEVE BELOW ALL HARDSCAPE ELEMENTS WITH SCH-40 PVC TWICE THE DIAMETER OF THE PIPE OR WIRE BUNDLE WITHIN.

RUN WIRING BENEATH AND BESIDE MAINLINE. TAPE AND BUNDLE AT 10-FOOT INTERVALS.

ALL SOLVENT WELD PLASTIC PIPING TO BE SNAKED IN TRENCH AS SHOWN.

TIE A 24-INCH LOOP IN ALL WIRING AT CHANGES OF DIRECTION OF 30° OR GREATER. UNTIE AFTER ALL CONNECTIONS HAVE BEEN MADE.

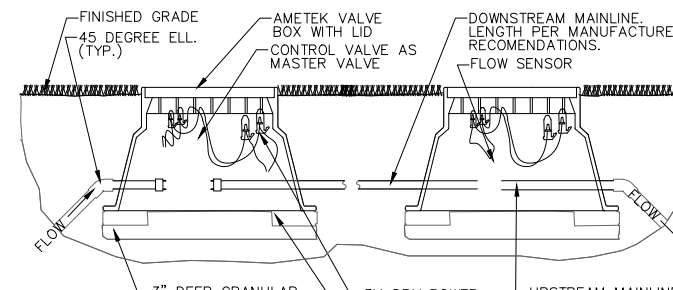
**5** TRENCHING DETAIL  
NTS



NOTES

1. ALL WIRE TO BE INSTALLED PER LOCAL CODE.
2. TAPE AND BUNDLE WIRE EVERY TEN FEET.
3. PROVIDE EXPANSION COILS AT EACH WIRE CONNECTION IN VALVE BOX. (WRAP AROUND 1/2" PIPE 15 TIMES.)
4. COMPACT SOIL AROUND VALVE BOX TO SAME DENSITY AS UNDISTURBED ADJ. SOIL.
5. INSTALL VALVES IN CLOSE PROXIMITY TO ADJACENT WALKS WHERE POSSIBLE.
6. ORIENT RECTANGULAR VALVE BOXES PARALLEL TO ADJACENT WALKS, CURBS, ETC.
7. INSTALLATION OF BALL VALVES WILL BE SIMILAR TO INSTALLATION FOR CONTROL VALVES.

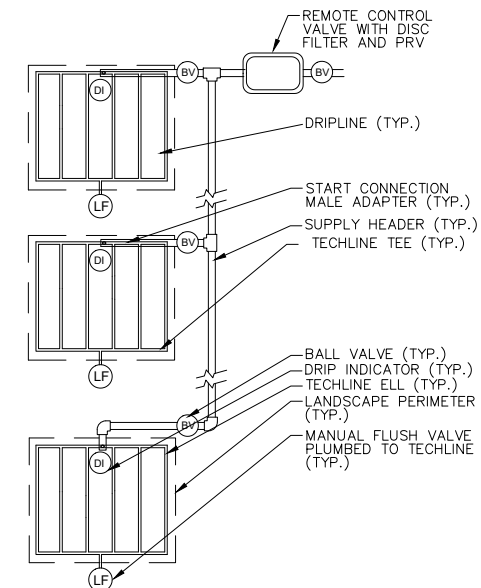
**6** CONTROL VALVE  
1" = 1'-0"



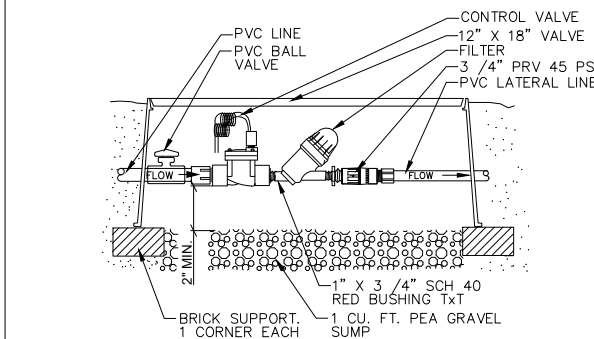
NOTES

1. ALL WIRE TO BE INSTALLED PER LOCAL CODE.
2. TAPE AND BUNDLE WIRE EVERY TEN FEET.
3. PROVIDE EXPANSION COILS AT EACH WIRE CONNECTION IN VALVE BOX. (WRAP AROUND 1/2" PIPE 15 TIMES.)
4. COMPACT SOIL AROUND VALVE BOX TO SAME DENSITY AS UNDISTURBED ADJ. SOIL.
5. INSTALL VALVES IN CLOSE PROXIMITY TO ADJACENT WALKS WHERE POSSIBLE.
6. ORIENT RECTANGULAR VALVE BOXES PARALLEL TO ADJACENT WALKS, CURBS, ETC.

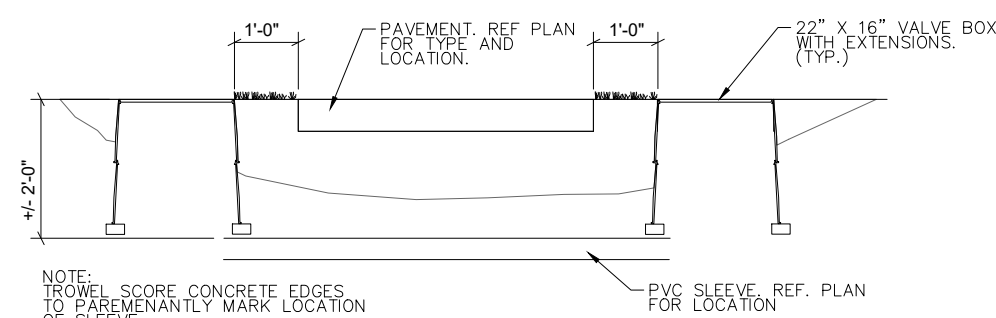
**7** MASTER VALVE & FLOW METER  
1" = 1'-0"



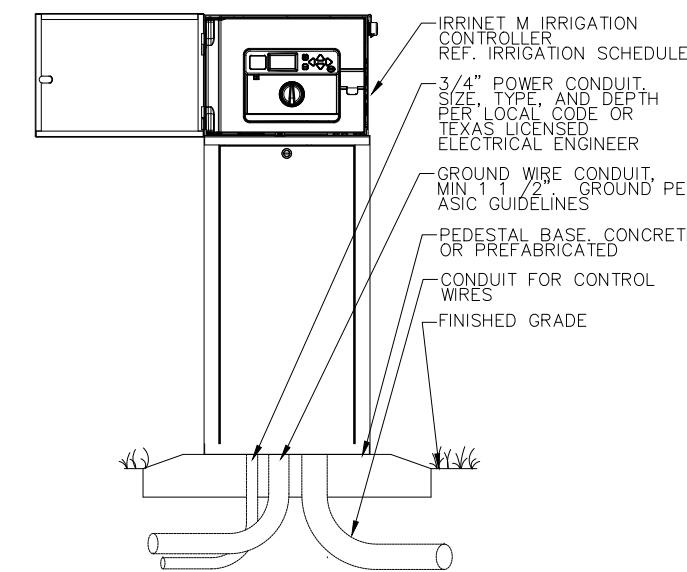
**8** DRIP IRRIGATION - MULTIPLE BEDS  
1" = 1'-0"



**9** VOLUME CONTROL VALVE  
1" = 1'-0"

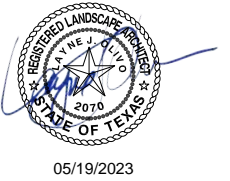


**10** IRRIGATION SLEEVE  
1" = 1'-0"



**11** IRRIGATION CONTROLLER  
1" = 1'-0"

CALL TXDOT TRAFFIC MANAGEMENT CENTER (817-370-3661) FOR TXDOT LOCATES WHEN WORKING NEAR EXISTING TRAFFIC SIGNAL.



IRRIGATION DETAILS

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